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# AMERICAN BUILDER

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## American Builder

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VOL. 32 — February, 1922 — No. 5


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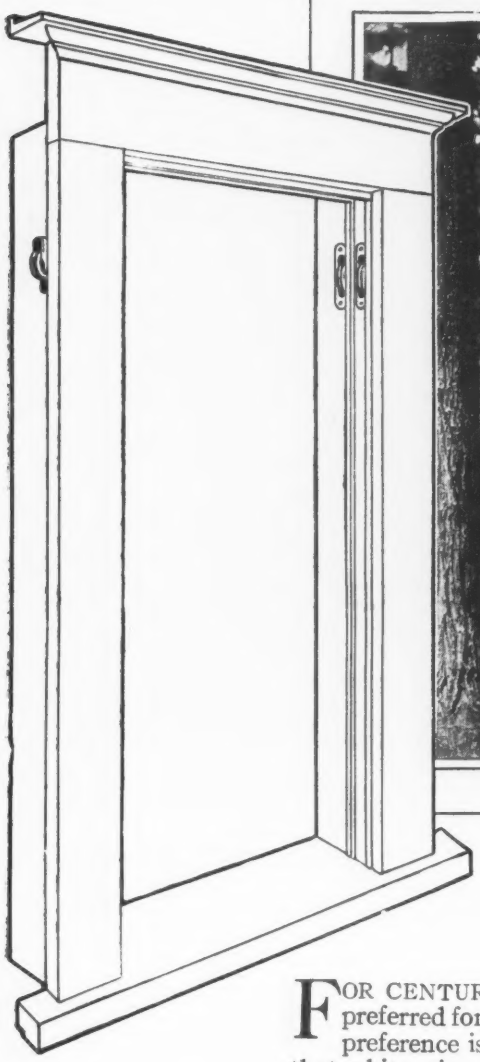

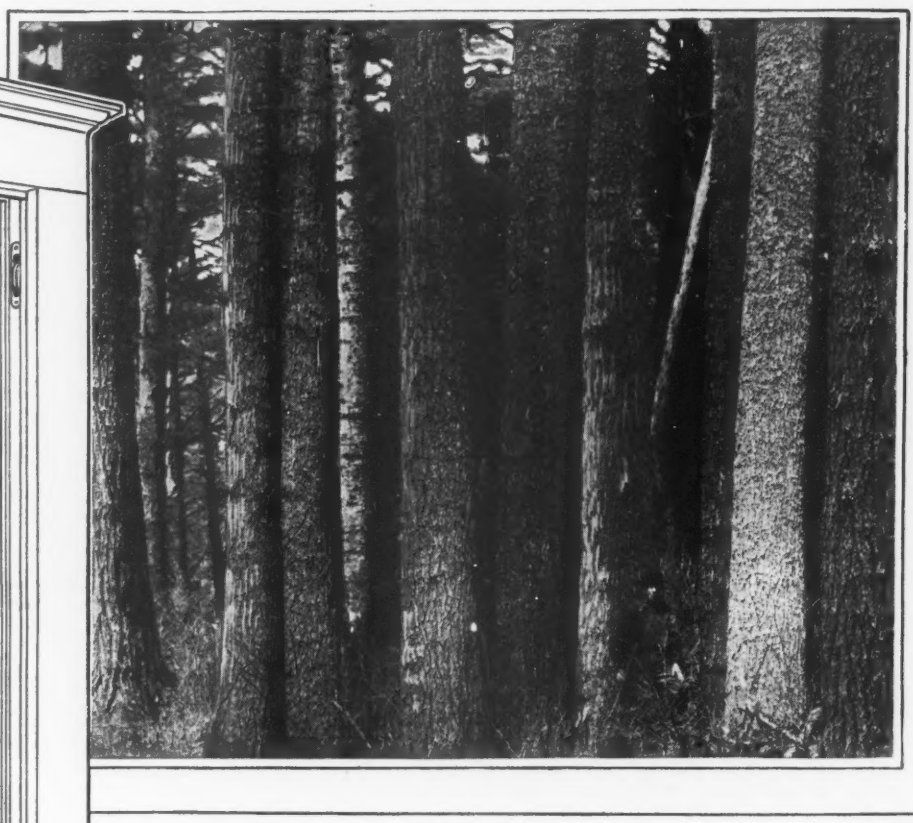

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Leading builders find that Andersen Frames cut building costs, eliminate delays and give complete satisfaction.

*Write for*
INTERESTING BOOK

We have prepared an interesting book on the qualities and economies of Andersen Frames. Upon request, we will gladly send you a copy without charge.

Andersen Lumber Company, Dept. A-2, South Stillwater, Minnesota

WHITE PINE Andersen FRAMES

# Andersen FRAMES

# Short Talks by the Editor

## What Does the Future Hold?

TODAY we need 1,500,000 homes, 60,000 apartments, 5,000 schools and public buildings, and 150 freight terminals. Those are the building requirements of the United States, according to figures compiled by the National Federation of Construction industries.

This year, according to a survey taken by the Farm Journal among 1,100,000 farmers, they will build:

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|---|---|
| Houses | 38,500 |
| Barns | 40,700 |
| Granaries | 17,600 |
| Chicken houses | 72,600 |
| Hog houses | 35,200 |
| Tool houses | 33,000 |
| Garages | 40,700 |
| Silos | 28,600 |

Most of these new houses are potential markets for heating, lighting and other home equipment. The barns will call for modern equipment and machinery.

These same farmers will paint:

| | |
|---|---|
| Houses | 239,800 |
| Barns | 140,800 |
| Other buildings | 105,600 |

Repair or remodel:

| | |
|---|---|
| Houses | 15,000 |
| Barns | 8,250 |
| Others | 3,800 |

and build or repair 95,700 fences. Combined with a large road building program this schedule becomes quite formidable and certainly looms promising for the building industry for the year 1922.

More so when we remember that these needs are only those voluntarily expressed. The possibilities in the latent field of building needs which can be developed thru intensive solicitation and salesmanship are several times the above requirements. The potential market of the paint and varnish field alone is $1,200,000,000, of which only 25 per cent has been developed.

Pause for a moment to consider the tremendous significance of these figures. It not only means an enormous demand for building materials, such as lumber, brick, clay products, etc., but for the accessories of building.

The electrical market, for instance, is largely dependent upon construction activities. Today the electrical contractor only gets 1 per cent to 3 per cent of the house building appropriation which can be greatly increased during 1922 if these interests get busy and solicit the business.

Today there are only seven million homes wired—14,000,000 still to be wired; 2,000,000 homes need electrical irons, 4,000,000 need vacuum cleaners, 4,500,000 need washing machines and 6,900,000 need ironers and dishwashers. Every member of the building industry should become an active worker in the electrical field—every builder is a salesman whenever he takes a contract for a new home or for remodeling an old one.

The other manufacturers of building accessories cannot ignore the meaning of this projected activity. The hardware, millwork, construction machinery and equipment manufacturers face a promising year and only thru efficient advertising and effective marketing can they reap the benefits which are there for their taking. All of the affiliated industries should be ready to take their proper place in this inspiring picture, co-ordinate and co-operate to make the teamwork of the whole industry more perfect and more productive.

Gazing into the Crystal Ball, I see 1922, a year of great building activity—thousands of homes will be built—millions will be spent. You have a prosperous year before you.

**The Builder Has Good Reason to Feel Optimistic Over This Year's Prospects. It Looks Like a "Builder's Year."**

# Electrical Suggestions for Building Contractor

SECOND AND FINAL INSTALLMENT OF ARTICLE OUTLINING AMPLE PROVISION FOR USE OF ELECTRICITY IN HOMES.

**By Reginald Trautschold, M. E.**
Society for Electrical Development

EDITOR'S NOTE: *Because of the growing importance of electrical equipment in the new home, the builder should study intensively the problems this work offers. We consider this article of utmost importance to all builders and advise them to read it carefully. Mr. Trautschold will answer all questions gratis. This is the concluding installment of the article which began in January.*

AS the voltage of virtually all circuits for the distribution of electric energy within buildings has now been pretty universally standardized at 110 volts and the wattage consumption of any electrical device—lamp or appliance—is equal to the product of this voltage and the number of amperes consumerd, it is the value of this latter quantity, the amperes consumed, which is the dominant consideration in planning any electric circuit for household use. They measure, or are proportional to, the quantity of electricity flowing thru the circuits per second, or other unit of time, and hence *govern* the size of circuit wire and the number of outlets which can be effectually installed on a circuit.

The general public may not appreciate this, nor is it necessary that it should, but the building contractor most certainly should. He cannot increase or decrease the voltage of the electric energy supply, but he can proportion his wiring so that the supply may be used with comfort, safety and convenience. To him falls the responsibility of wiring for comfort and making adequate provisions for the possible ampere demand.

### Safe Carrying Capacities

The importance of the ampere requirements are thus emphasized, rather than those of wattage, for the reason that the fuses protecting the various circuits, etc., are universally rated in amperes, as they should be, while the compound units of watts and kilowatts, with which the public is perhaps slightly more familiar, are potent only in so far as their ampere components are concerned. So far as the house circuits are concerned—to repeat—it is the number of amperes which the wires can carry without undue heating which control the size of wire to be used and the number of outlets which can be effectively installed in a circuit. With this fact in mind, the familiar table of safe carrying capacities of wires takes on a somewhat different meaning and the reasons for the limitations imposed by the National Electric Code become apparent, particularly when wiring for comfort, convenience and safety.

TABLE I

SAFE CARRYING CAPACITY OF RUBBER-COVERED COPPER WIRES

| Size—B & S. Gauge | Amperes | Wattage at 110 volts |
|---|---|---|
| No. 18 | 3 | 330 watts |
| No. 16 | 6 | 660 watts |
| No. 14 | 15 | 1,650 watts |
| No. 12 | 20 | 2,200 watts |
| No. 10 | 25 | 2,750 watts |
| No. 8 | 35 | 3,850 watts |

### Limitations of Lighting Circuits

Adequate and proper lighting of the home is, of course, a highly important consideration and for economic considerations, if for no other, the various branch lighting circuits in a house are usually well loaded and are protected in several ways—protections which also impose certain very definite limitations. In the first place, No. 14 wire is now generally specified, despite the 660 watt rule, in order to insure against overload in lighting service. This size of wire is rated as safe for 15 amperes, but as a further protec-

## STANDARD SYMBOLS FOR WIRING PLANS

As suggested by The Society for Electrical Development, Inc., and Adopted by National Associations

- (4) Ceiling Outlet; Electric. Numeral in center signifies number of standard lamp sockets.
- (4/2) Ceiling Outlet; Gas and Electric. Upper numeral signifies number of standard lamp sockets; lower numeral, number of gas burners.
- Ceiling Outlet; Gas.
- (2) Wall Bracket Outlet; Electric. Numeral in center signifies number of standard lamp sockets.
- (4/2) Wall Bracket Outlet; Gas and Electric. Upper numeral signifies number of standard lamp sockets; lower numeral, number of gas burners.
- Wall Bracket Outlet; Gas.
- (2) Convenience Outlet; Wall or Baseboard. Numeral in center signifies number of standard plug receptacles.
- (3) Floor Outlet. Numeral in center signifies capacity in number of appliances as described in specifications.
- (6) Outlet for Outdoor Standard or Pedestal; Electric. Numeral signifies number of standard lamp sockets.
- (6/6) Outlet for Outdoor Standard or Pedestal; Gas and Electric. Upper numeral signifies number of standard lamp sockets; lower numeral, number of gas burners.
- (D) Drop Cord Outlet.
- One Light Outlet, for Lamp Receptacle.
- Arc Lamp Outlet.
- Special Outlet; for Lighting, Heating and Power Current; as described in Specifications.
- (M) Motor Outlet. Numeral in center signifies horsepower.

$S^1$ Single Pole (S.P.) Switch Outlet.
$S^2$ Double Pole (D.P.) Switch Outlet.
$S^3$ 3-Way Switch Outlet.
$S^4$ 4-Way Switch Outlet.
$S^D$ Automatic Door Switch Outlet.

Indicate all switches on Plans. Large group of switches should be indicated by a Roman numeral. Describe type of switch (Flush, Push Button or Snap) in Specifications.

tion, at the present time, a 10-ampere fuse is customarily specified for safeguarding such a circuit. Another limitation, tho one which is very frequently disregarded, is imposed by the type of lamp socket customarily employed for holding the lamps in the fixtures. These are rated as safe for 250 watts —that is, for from 2 to 2.5 amperes—making them really unsuitable for appliances requiring from 3 to 6 amperes or more as many popular appliances demand for effective operation.

Of course, a lighting circuit is rarely called upon to supply current to its full complement of lamps at the same time and a 250 watt key socket rarely fails immediately when transmitting more than 2 or 2.5 amperes. Yet, the full complement of lamps may be used or the key socket may fail when overloaded. However, neither of these objections to loading a lighting circuit with appliances consuming more current than a lamp are as serious in the popular mind as the inconvenience of the screw socket for attaching appliances. Let this really minor objection suffice, for by catering to it possibly more serious objections pertaining to the safe and proper use of electric appliances are circumvented. Furthermore, lamp sockets are rarely, if ever, conveniently located for the attachment of appliances.

**Convenience Outlet Circuits**

The virtually essential convenience outlets must, naturally, be conveniently located, but this is largely a responsibility devolving upon the architect or designer of the building. The responsibility of wiring these outlets, however, is a responsibility of the contractor quite as much as it is of the architect. In order that the contractor may wire properly, he must be familiar with the Code requirements for lighting circuits, the safe carrying capacity of wires as given in Table I and also have an appreciation of the type of appliances which may be used in the various rooms. In this latter connection, Table II lists some of the electric appliances which are frequently employed in various rooms of a modern home—the average ampere requirements of the appliances consuming more current than it is wise to draw from ordinary lighting circuits being given between brackets after the name of the appliance.

Many of the appliances listed in the following table could quite properly be attached to screw sockets on lighting circuits, provided the circuits were of ample carrying capacity, but they can one and all be more conveniently attached to convenience outlets. Furthermore, all the appliances mentioned are seldom employed in one house, nor are they all used at the same time. However, the list is typical of what demands may be made on convenience circuits in various rooms. Consequently this table, in connection with Table I and familiarity with the "factors of safety" customarily employed in connection with lighting circuits will enable the building contractor who plans his work with

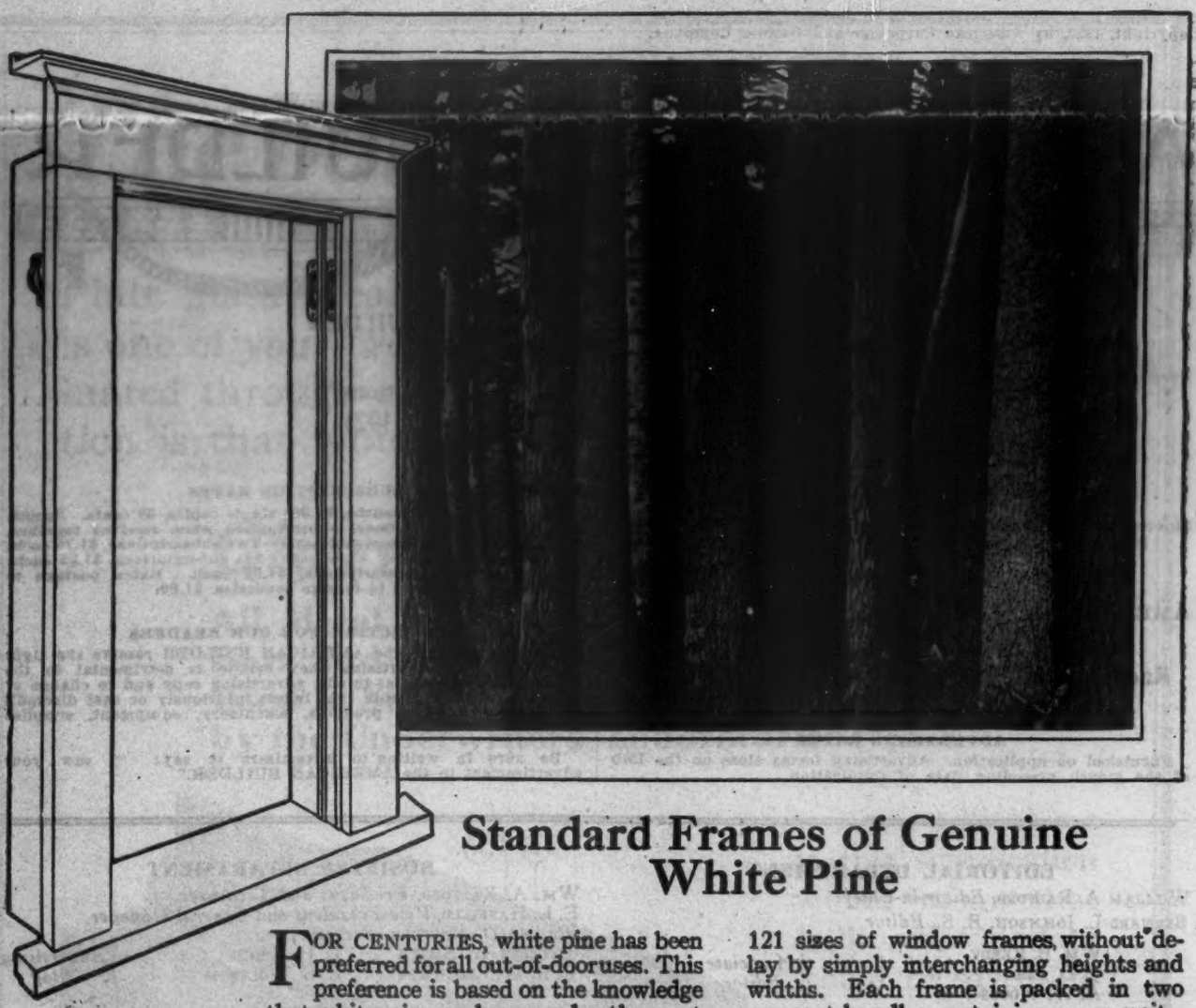
(*Continued to page 104.*)

**STANDARD SYMBOLS FOR WIRING PLANS**

(*Continued*)

- Telephone Outlet; Private Service.
- Telephone Outlet; Public Service.
- Bell Outlet.
- Buzzer Outlet.
- Push Button Outlet; Numeral signifies number of buttons.
- Annunciator; number signifies number of points.
- Speaking Tube.
- Watchman Clock Outlet.
- Watchman Station Outlet.
- Master Time Clock Outlet.
- Secondary Time Clock Outlet.
- Door Opener.
- Ceiling Fan Outlet.
- Special Outlet; for Signal Systems; as described in Specifications.
- Meter Outlet.
- Distribution Panel.
- Junction or Pull Box.
- Motor Control Outlet.
- Battery Outlet.
- Transformer.

Electrically Equipped Laundry in Modern Home Showing Some of the Conveniences That the Builder Can Offer the Housewife. Happy Work Makes Happy Homes.



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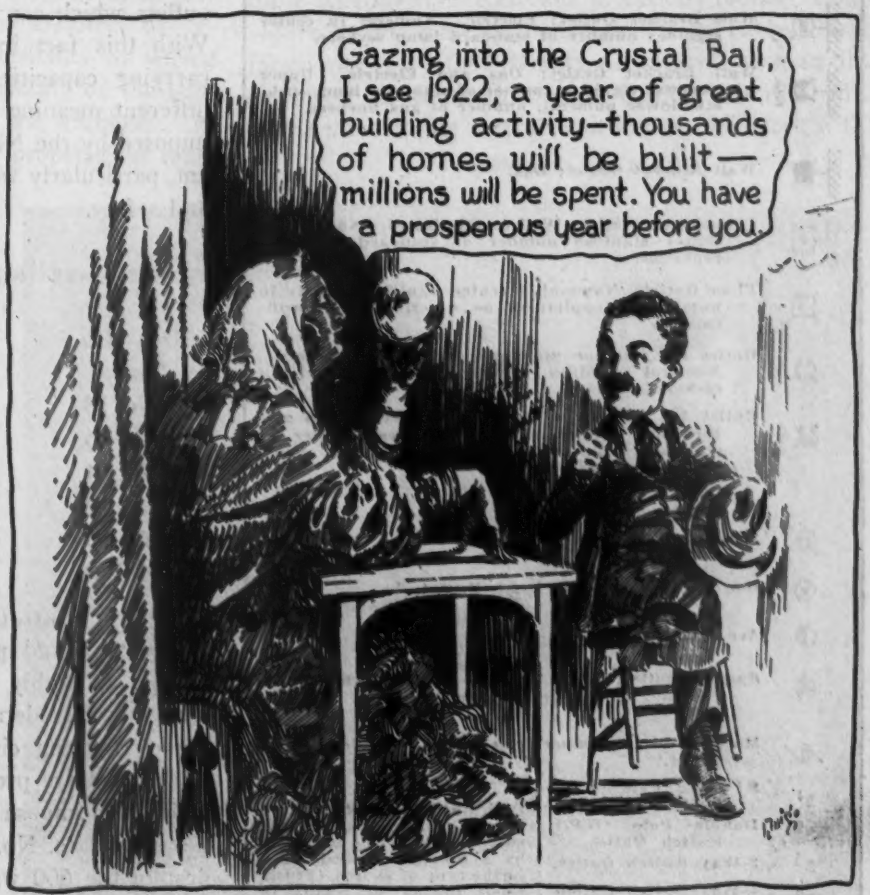
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Indicate all switches on Plans. Large group of switches should be indicated by a Roman numeral. Describe type of switch (Flush, Push Button or Snap) in Specifications.

tion, at the present time, a 10-ampere fuse is customarily specified for safeguarding such a circuit. Another limitation, tho one which is very frequently disregarded, is imposed by the type of lamp socket customarily employed for holding the lamps in the fixtures. These are rated as safe for 250 watts —that is, for from 2 to 2.5 amperes—making them really unsuitable for appliances requiring from 3 to 6 amperes or more as many popular appliances demand for effective operation.

Of course, a lighting circuit is rarely called upon to supply current to its full complement of lamps at the same time and a 250 watt key socket rarely fails immediately when transmitting more than 2 or 2.5 amperes. Yet, the full complement of lamps may be used or the key socket may fail when overloaded. However, neither of these objections to loading a lighting circuit with appliances consuming more current than a lamp are as serious in the popular mind as the inconvenience of the screw socket for attaching appliances. Let this really minor objection suffice, for by catering to it possibly more serious objections pertaining to the safe and proper use of electric appliances are circumvented. Furthermore, lamp sockets are rarely, if ever, conveniently located for the attachment of appliances.

**Convenience Outlet Circuits**

The virtually essential convenience outlets must, naturally, be conveniently located, but this is largely a responsibility devolving upon the architect or designer of the building. The responsibility of wiring these outlets, however, is a responsibility of the contractor quite as much as it is of the architect. In order that the contractor may wire properly, he must be familiar with the Code requirements for lighting circuits, the safe carrying capacity of wires as given in Table I and also have an appreciation of the type of appliances which may be used in the various rooms. In this latter connection, Table II lists some of the electric appliances which are frequently employed in various rooms of a modern home—the average ampere requirements of the appliances consuming more current than it is wise to draw from ordinary lighting circuits being given between brackets after the name of the appliance.

Many of the appliances listed in the following table could quite properly be attached to screw sockets on lighting circuits, provided the circuits were of ample carrying capacity, but they can one and all be more conveniently attached to convenience outlets. Furthermore,

**STANDARD SYMBOLS FOR WIRING PLANS**
*(Continued)*

- Telephone Outlet; Private Service.
- Telephone Outlet; Public Service.
- Bell Outlet.
- Buzzer Outlet.
- Push Button Outlet; Numeral signifies number of buttons.
- Annunciator; number signifies number of points.
- Speaking Tube.
- Watchman Clock Outlet.
- Watchman Station Outlet.
- Master Time Clock Outlet.
- Secondary Time Clock Outlet.
- Door Opener.
- Ceiling Fan Outlet.
- Special Outlet; for Signal Systems; as described in Specifications.
- Meter Outlet.
- Distribution Panel.
- Junction or Pull Box.
- Motor Control Outlet.
- Battery Outlet.
- Transformer.

all the appliances mentioned are seldom employed in one house, nor are they all used at the same time. However, the list is typical of what demands may be made on convenience circuits in various rooms. Consequently this table, in connection with Table I and familiarity with the "factors of safety" customarily employed in connection with lighting circuits will enable the building contractor who plans his work with

*(Continued to page 104.)*

**Electrically Equipped Laundry in Modern Home Showing Some of the Conveniences That the Builder Can Offer the Housewife. Happy Work Makes Happy Homes.**

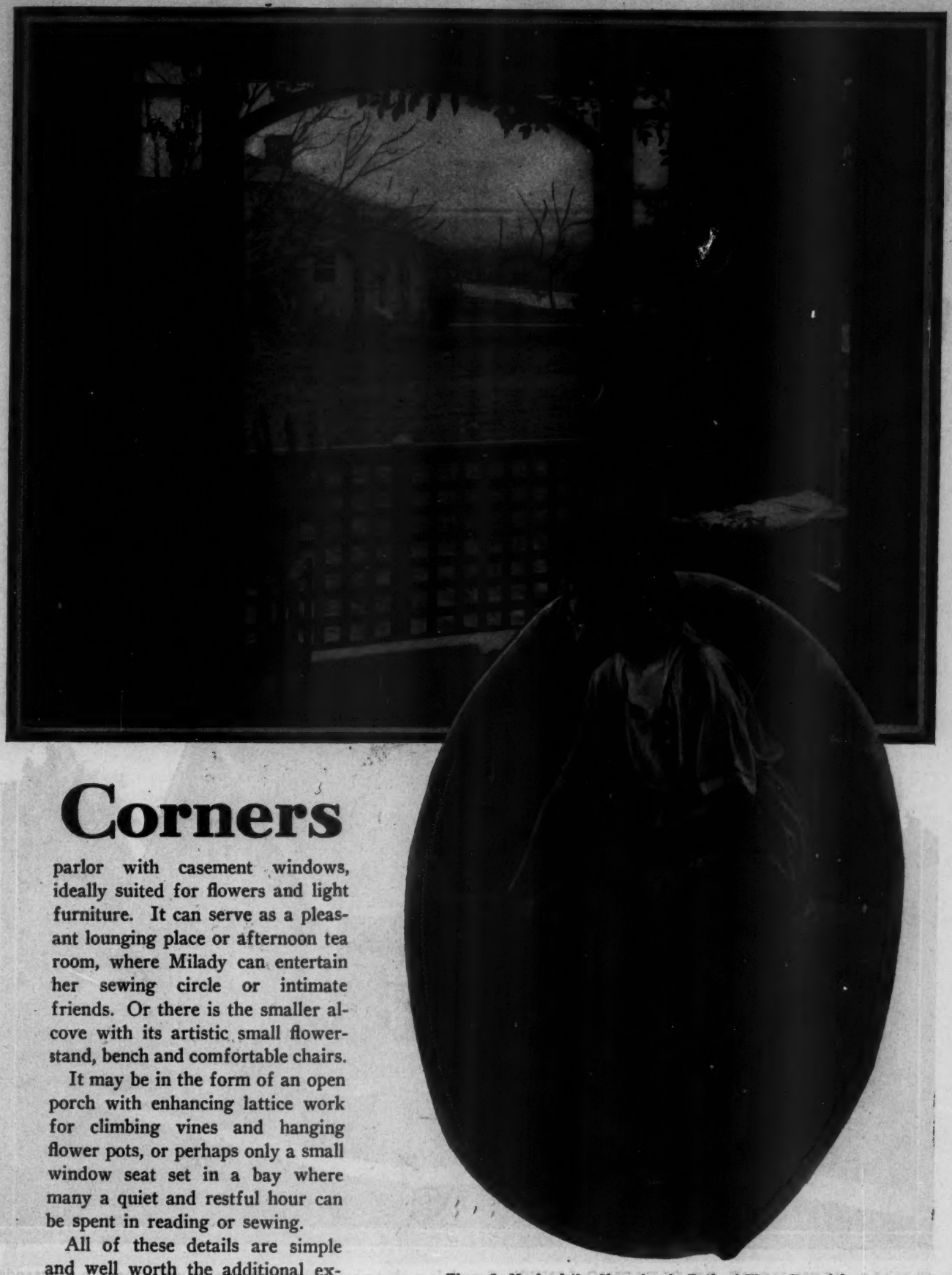
Two Inviting Retreats That Help to Put the "Come" in Welcome.

# Cozy

## Artistic Touches that Make the Home More Beautiful

THERE are many ways of making the average home quite beautiful and cozy, but few as effective as an artistically arranged sun porch, nook, or alcove with abundant window space to admit plenty of God's glorious sunshine. Darkness is unconsciously shunned by all and the bright spots in the home are the ones that add the cheer and warmth of welcome. These little pockets of sunshine can be provided by the thoughtful builder at very little extra expense. Consider some of the delightful corners shown in the illustrations.

There is an octagonal-shaped sun



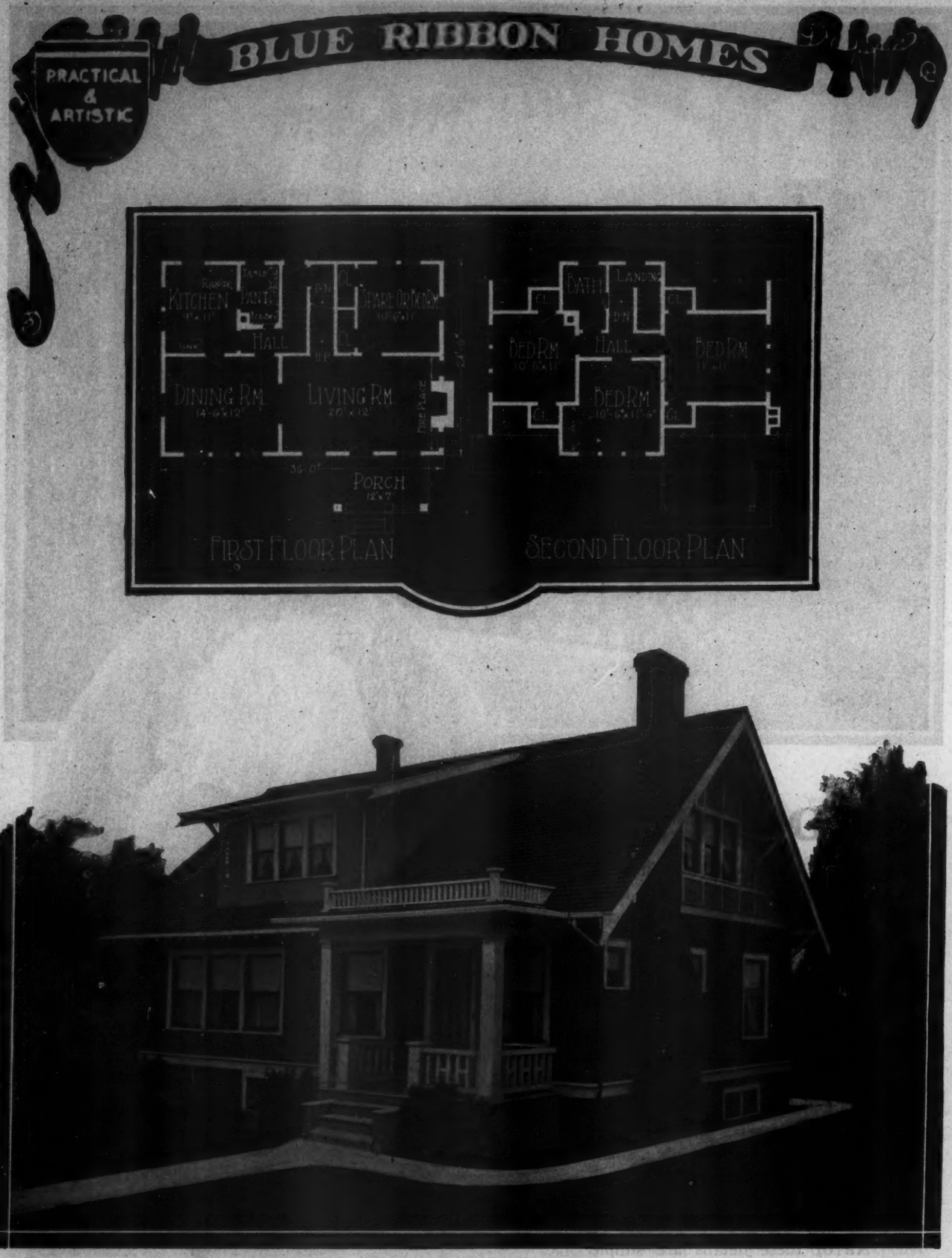
# Corners

parlor with casement windows, ideally suited for flowers and light furniture. It can serve as a pleasant lounging place or afternoon tea room, where Milady can entertain her sewing circle or intimate friends. Or there is the smaller alcove with its artistic small flower-stand, bench and comfortable chairs.

It may be in the form of an open porch with enhancing lattice work for climbing vines and hanging flower pots, or perhaps only a small window seat set in a bay where many a quiet and restful hour can be spent in reading or sewing.

All of these details are simple and well worth the additional expense. Suggest them to your clients when talking house plans.

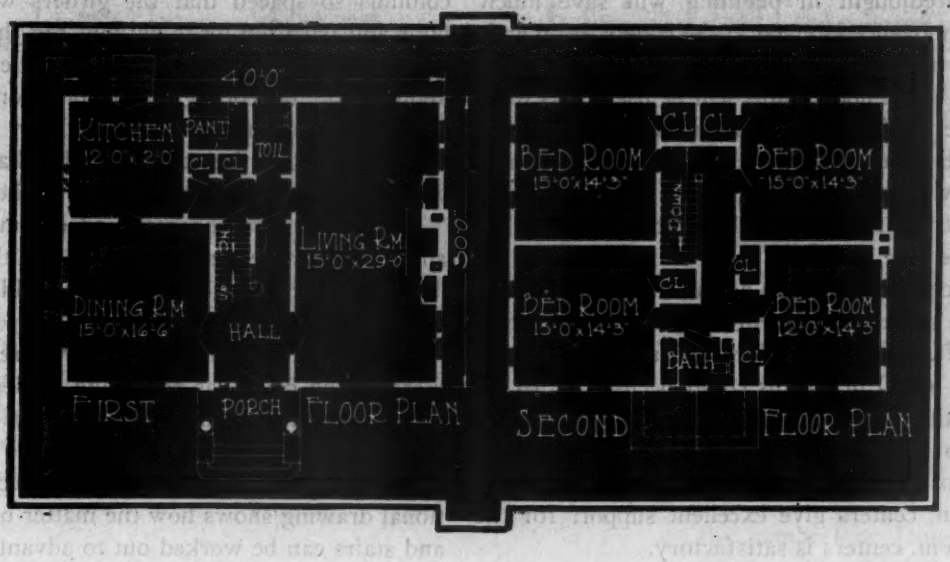
**There Is Much of the Charming in Both of These Peaceful, Cozy Details.**




**SMALL COZY HOME OF PLEASING LINES.** Certainly a charming little dwelling that will appeal to thousands of home-hungry families. It is a design worthwhile in any builder's sample case. It is comparatively inexpensive to build because it does not call for features and materials that are expensive. The siding is shingles with stucco above the first floor under the gables. There is a small, artistically-built front porch opening into a modest living room of good size, 20 by 12 feet, with fireplace and wall bookcases. The windows are well placed and numerous. There are seven rooms in the complete plan, four on the first floor and three on the upper floor. The fourth room on the lower floor is a spare room that can be used for bedroom or library. Three bedrooms are located upstairs. The excellent room arrangement permits of no waste in floor space. Size, 36 by 24 feet 6 inches.

# BLUE RIBBON HOMES

PRACTICAL & ARTISTIC



**FAMILIAR SQUARE HIP ROOF HOUSE DESIGN.** Its charm lies in its plain, substantial appearance, and its popularity is due in the main to its economy in cost. For, in this square type, there is little of the freak or frill to increase costs. This house is built of frame with concrete foundation, front steps and porch. The entrance is Colonial of the heavier type and the interior arrangement is similar to that of the typical Colonial homes, namely, three rooms on the lower floor and four bedrooms on the second floor. The living room is one of those delightfully large and cheerful rooms, 15 by 29 feet with the usual open fireplace that "burns" and small flanking bookcases. Light from three sides makes it a most desirable lounging and reading room. In view of the close attention being paid to costs by prospective homebuilders, this economical design will be in much demand this year. Size 30 by 40 feet.

# Building a Gambrel Roof House

DETAIL OF CONSTRUCTION OF BUILDING POPULARLY KNOWN AS DUTCH COLONIAL.

**By R. C. Hunter, Architect**

AFTER the general plan arrangement of the house has been decided upon and the exterior treatment considered in a tentative way, we next turn to the matter of construction.

A little forethought in planning will save much trouble and annoyance later on in the construction end. For instance, in deciding room sizes, unless the house is very small, 10-in. floor beams will be used; this fixes the short side of the room or the maximum span for the beams at about 15 ft. if hemlock is used and about 16 ft. with spruce. This is with beams at 16 in. o. c. and with a reasonable allowance for partition loads and the like, that will rest on the beams. If desired over certain rooms on account of the span, the beams can be spaced 12 in. centers, giving a safe span of about 16 ft. 8 in. for hemlock and about 18 ft. for spruce, or, 3 by 10 in. beams could be used at 16 in. centers, but this requires ordering a few 3-in. beams where most of the others are 2 in. Then, too, a 3-in. width does not allow proper clinch for the plaster ceiling, and 12-in. centers give excellent support for the lath, altho 16-in. centers is satisfactory.

Beams 10 in. in depth allow a reasonable amount of cutting for the plumbing and heating pipes, whereas beams that are 8 in. in depth allow for no cutting whatever, even where the span is short. The commercial timber often runs ¼ to ⅜ in. scant in both dimensions, so that a 2 by 8 in. is often but 1¾ by 7⅝ in. and is suitable as floor beams only for short spans.

To build well and the same time economically requires a very thoro consideration of each and every item of construction, in much the same manner as we have considered the matter of floor joists.

The girders in the cellar that support the first floor beams should be 6 by 10. in size, and the piers or columns so spaced that the girders will support the floor and partition loads without sag that would crack the plastered walls. This span is generally limited to about 8 ft., depending upon conditions and loading. The girder should be framed flush with the floor beams to avoid the excessive shrinkage that occurs when the beams run over the top of the girder.

Footings under the piers or columns must be of ample size to prevent settlement. With an 8-ft. spacing of the columns the footings should be 2 ft. square and 12 in. thick, of concrete.

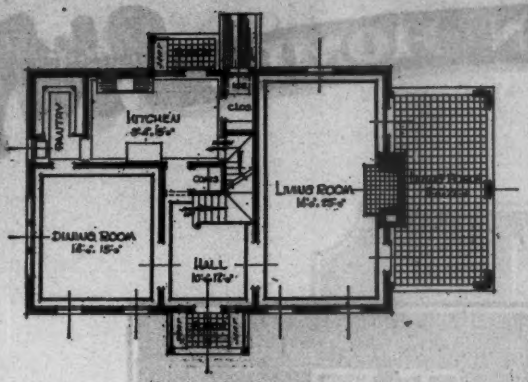
Cement filled pipe columns are preferred to brick piers in the cellar, as they take up less room, give a neater appearance and often cost less than the piers.

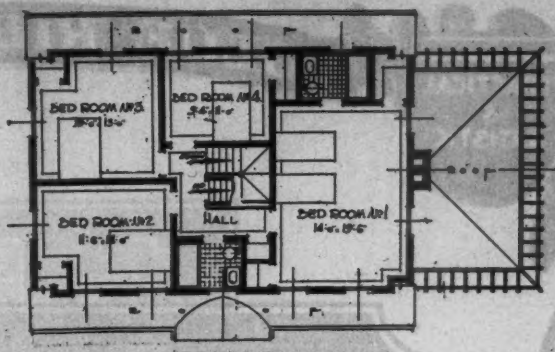
Next consider the stairs and their relation to the ceiling heights of the house. The accompanying sectional drawing shows how the matter of ceiling heights and stairs can be worked out to advantage.

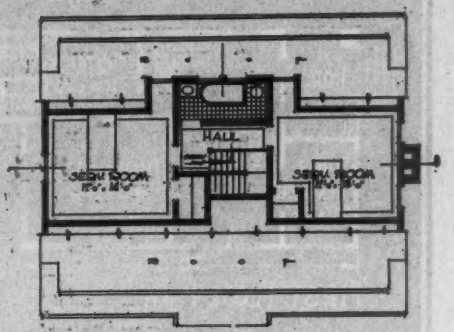
If we establish our ceiling heights arbitrarily, without regard to the stairs, we find that the risers, in most cases, work out in mean fractions, seven-elevenths, nine-thirteenths, and the like. This trouble can be avoided by establishing the heights from floor to floor so that the risers work out even.

Starting with the cellar, 8 ft. from cellar floor to first floor gives twelve risers at 8 in., which, combined with an 8-in. cut for the tread, gives a good cellar stairs.

Well-designed Dutch Colonial House Showing Gambrel Roof. This Type of Roof Calls for Special Construction Which Is Outlined in Article Above. This House Was Designed by R. C. Hunter & Bro., Architects, New York.



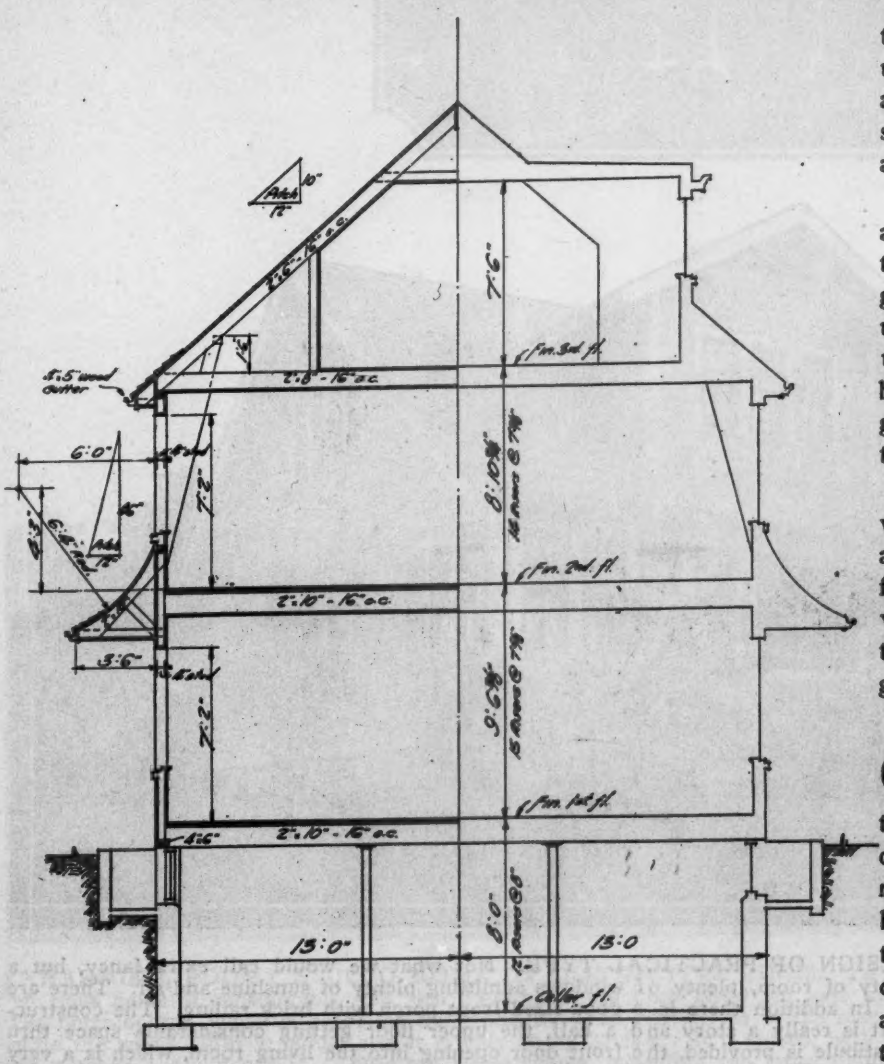

**Floor Plans of Gambrel Roof House. It Contains Nine Rooms.**

From the first floor to the second floor, a height of 9 ft. 6⅜ in. gives fifteen risers at 7⅝ in., which, with a tread of 9½ in., gives a stair that is easy and economical on space.

From the second floor to the third floor, fourteen risers at 7⅝ in. gives height of 8 ft. 10¾ in.

With 10-in. first and second floor beams and 8-in. third floor beams, the finished ceiling heights are: Cellar, 7 ft.; first floor, 8 ft. 6 in.; second floor, 8 ft. 1 in. These are good heights for the average house.

The roof deserves careful consideration, particularly the gambrel or Dutch type. The upper and lower pitches should bear a pleasing relation and provision should be made for the use of the attic or third floor space.




**Cross-Section of Gambrel Roof House Showing Details of Construction.**

The accompanying section shows a lower pitch of 46 to 12 in. and the upper pitch 10 to 12 in.; this gives good proportions and the upper pitch is steep enough to allow usable room on the third floor. The broad overhanging eaves of the roof give the house a low appearance that is pleasing.

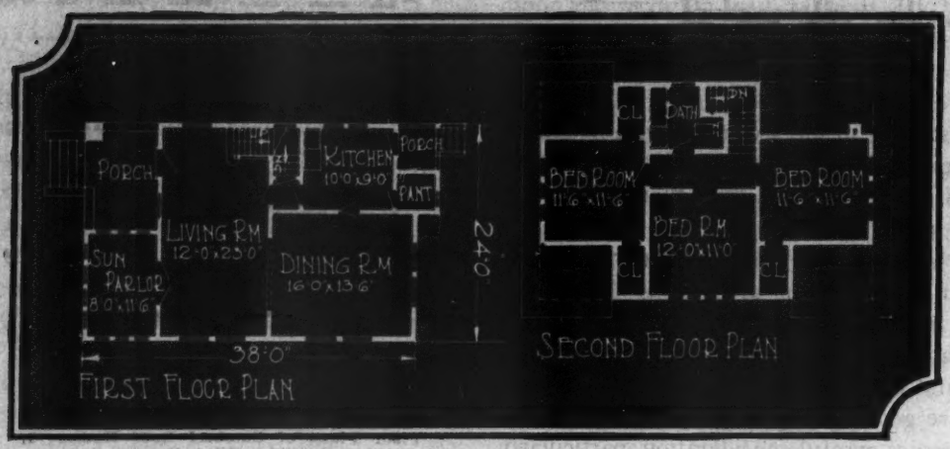
The windows in this house are well proportioned, properly spaced and placed; their height from the floor is such that the required privacy is retained and at the same time they are low enough to give good outlook.

✣

CONSTRUCTION interests during 1922 should concentrate on educating the public and owners of property to construct new buildings or rehabilitate old buildings to obtain maximum return and eliminate eyesores of dilapidated structures. The various associations should jointly survey the construction needs of each city and devise ways and means for fulfilling these needs.

# BLUE RIBBON HOMES

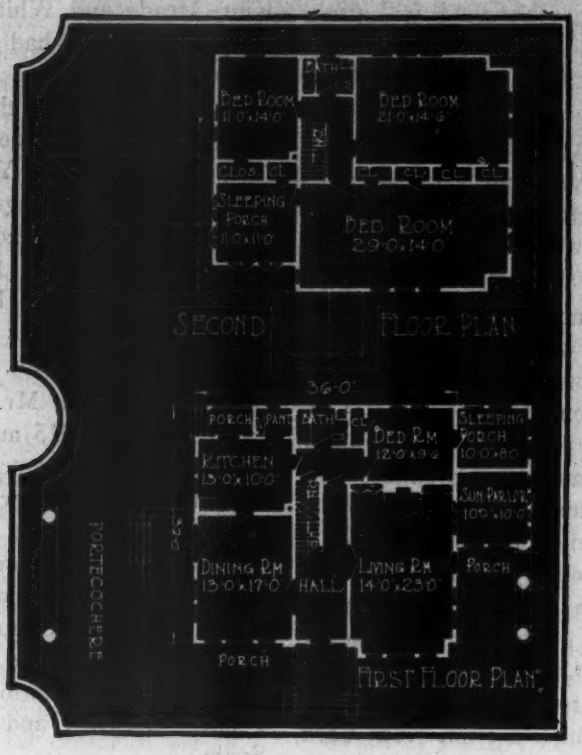
PRACTICAL & ARTISTIC



**STURDY, COMELY HOUSE DESIGN OF PRACTICAL TYPE.** Not what we would call extra fancy, but a good substantial home with plenty of room, plenty of windows admitting plenty of sunshine and air. There are six livable rooms and a sun parlor. In addition there is a good-sized front porch with brick railing. The construction is frame on brick foundation. It is really a story and a half, the upper floor getting considerable space thru front and rear roof dormers. No vestibule is provided, the front door opening into the living room, which is a very large and comfortable room, 23 by 12 feet. The day of double parlor has gone, the single large living room now taking up that space. Dining room and kitchen are grouped conveniently while the three bedrooms and bath are located on the upper floor. The house is 38 feet wide and 24 feet long.

# BLUE RIBBON HOMES

PRACTICAL & ARTISTIC



**CHARMING, ROOMY STUCCO HOME OF DISTINCTIVE LINES. To all appearances a very broad, pretentious home of considerable size, this dwelling is not very large but gets that appearance from its arrangement. The portecochere, which is becoming quite popular since the advent of the rear garage, adds breadth to the building as do the wings. But in actual size it is only 36 by 32 feet. It is stucco, with front and side porches, several sleeping porches and sun parlor. There are seven rooms, including the large living room, 14 by 23 feet, dining room, kitchen and one bedroom on the first floor and three bedrooms on the second. The first floor bedroom has a sleeping porch addition and two of the upstairs rooms have individual sleeping porches. There is a large fireplace in the living room with wall bookcases on each side. The sun parlor is off the living room.**

# Unique Fountain Is Work of Architect

WINS PRIZE AGAINST LARGE FIELD—PART OF PLAN TO BEAUTIFY BELLE ISLE PARK, DETROIT

By M. Woolsey Campau

DETROIT is to have a fountain that will rank among the world's greatest and will probably be the costliest in the United States. Preliminary work is under way.

James Scott, an obscure citizen, died in 1910 and left his entire estate to the city to build it. The site designated in the bequest was Belle Isle, Detroit's famous playground in the Detroit River. There was only one condition to this gift which was that the fountain should include a life-size statue of Mr. Scott.

The city accepted the gift but it was four years later that the James Scott Water Fountain Commission invited competition for the fountain before a distinguished Jury of Awards, consisting of Charles A. Platt, Walter Cook, and Robert S. Peabody, architects, Frederick Law Olmsted, landscape architect and Daniel Chester French, sculptor.

In the meantime the commission has employed as its professional adviser Professor Eugene Duquesne, who had had charge for the French government of the celebrated fountains and gardens at Versailles.

The competition was one of the largest ever held in the United States. In the first stage, ninety-two designs were submitted by architects from New York, Boston, Philadelphia, San Francisco, Detroit, Pittsburgh, Washington and thirteen other cities.

From these the jury selected seven designs which entered the final stage together with designs by McKim, Meade and White, Carrere and Hastings and Cass Gilbert who had been specially invited by the commission.

Winning Design in Competition for the Scott Memorial Fountain Submitted by Cass Gilbert, Architect, New York.

The awards, from the Scott fund, of $10,000 set aside for the competition, were as follows:

Cass Gilbert, New York, first prize.

Carrere and Hastings, New York, second prize.

Codman and Despradelle, Boston, third prize.

Guy Lowell, Boston, fourth prize.

The feature which had commended Mr. Gilbert's design to the jury was its large use of water; it was, first of all, a fountain.

A contract with Mr. Gilbert was approved by the city council in 1915 and about a year later, he submitted plans and sketches. The plan submitted was substantially the one which won him the competition, altho the competition had been primarily for the purpose of selecting, not a design, but an architect.

The importance attached by the architect to this commission and the thoroness with which he executed it are attested by the special trips he has taken in Europe to visit various fountains,—trips to Italy, France, Germany and the British Isles and two to Spain.

His plans contemplate the reclamation of a triangular area of about forty-five acres at the lower end of the island where the water is shallow. For this purpose and to build a retaining wall, the city appropriated $100,000. The consent of the War Department had to be secured as the river is government water. This work is now in progress by the process of pumping dirt from the bottom of the river.

After some modifications of the plans had been made to reduce the cost, the James Scott Water Fountain Commission recommended on July 12, 1921, that bids be accepted which would bring the cost of general construction to $345,200 and of the mechanical and electrical equipment to $75,785, with the proviso that the general construction be finished in 300 working days. On this basis contracts have been let to local concerns, who have already started with the foundation. The fountain will soon be a reality.

This will not require the expenditure of the entire amount of the bequest, which now amounts to about $530,000; the remainder will be used for maintenance and repairs.

Generally speaking, the plan of the fountain is that of a circle imposed on a large triangle and is the embodiment of simplicity. This triangle of "fill" which will be made geometrically correct by retaining walls, has a base of 1,725 feet passing thru the center of the fountain and a length of 1,500 feet from this base line to the apex.

# Beautiful Fountain for Detroit Park

A large part of the triangle will be taken up by a lagoon for small boats, connecting with the present system of lagoons and into which a cascade from the fountain will flow. On the opposite side of the fountain to the lagoon will be five radial roads, one of which will be the approach from the new $3,000,000 Belle Isle bridge which the city is building.

The general plan includes a ferry house and landing on the north or city side of the triangle as well as, in the future, a harbor for small boats. Roads will run down to the apex, where it is expected there will be, some day, some kind of architectural embellishment.

It has been suggested by Mr. Gilbert to the city council that this embellishment should take the form of a Soldiers', Sailors' and Marines' Memorial, for which he has submitted the very beautiful design embodied in the drawing on this page. This has not been accepted and for the purpose of this description the drawing is chiefly useful to show the general treatment of the lower end of Belle Isle. The fountain is indicated just above the center of the picture and the new bridge at the upper left hand corner.

**Treatment of the Lower End of Belle Isle Park, Detroit, Mich., Incorporating New James Scott Memorial Fountain. The Structure at the Lower End Is the Proposed Soldiers' and Sailors' Memorial.**

The fountain proper is to be of white Vermont marble and is to consist of a bowl and a series of concentric circular pools one below the other, the outer pool to have a diameter of 112 feet. Around this will be a promenade with a grass slope and steps leading down to a driveway which will encircle the whole. Between the driveway and the lagoon will be another slope, semi-circular in shape, and cut by steps leading to the water's edge, with cascades flowing from the upper to the lower slope and thence to the lagoon. The diameter of the outermost circle is 510 feet.

From the land side of the fountain structure is 28½ feet high. On special occasions a geyser will rush upward from the center of the bowl to a height of 125 feet,—a tremendous volume of water which will be supplied by an eight-inch pipe thru a three-inch nozzle. Twenty smaller jets around the circumference of the bowl will give a continuous play of water.

The fountain's central portion is a shell with a circular arch under the basin of an 8 foot 6 inch radius and with a spring line 12 feet from the floor, making a pump room which is to contain two centrifugal pumps and the water mains.

Four marble lions will spout water from the intermediate to the lower pool and many turtles will throw water back to the lower pool from the outer pool. Other decorative features are dolphins and heads under the bowl.

On the recommendation of Mr. Gilbert, Mr. Herbert Adams of New York was selected as the sculptor for the statue of James Scott, which is to cost $20,000. The figure will be on the axis of the fountain, facing it and on the opposite side to the lagoon.

Groups of statuary have been designed to be placed in the lagoon on each side of the cascade but will not be installed until some time in the future.

Belle Isle is two-and-one-half miles long and the upper end has been left more or less in its natural condition, heavily wooded. The original layouts of roads, canals and lagoons was made by Frederick Law Olmsted, Sr. The fountain, with its very formal treatment is the culmination of the artificial improvements in the way of buildings at the lower end. If the proper kind of a structure, such as the Soldiers' and Sailors' Memorial proposed by Mr. Gilbert is added to the apex of the triangle, the effect will be impressive indeed.

The fountain will be in full view of both the American and Canadian shores and of the hundreds of vessels which ply the river and is therefore to have a very unusual site. At this point the river is about a mile wide.

There is an added interest in the selection of the architect in that Mr. Gilbert has just completed a very splendid building for Detroit, its new public library.

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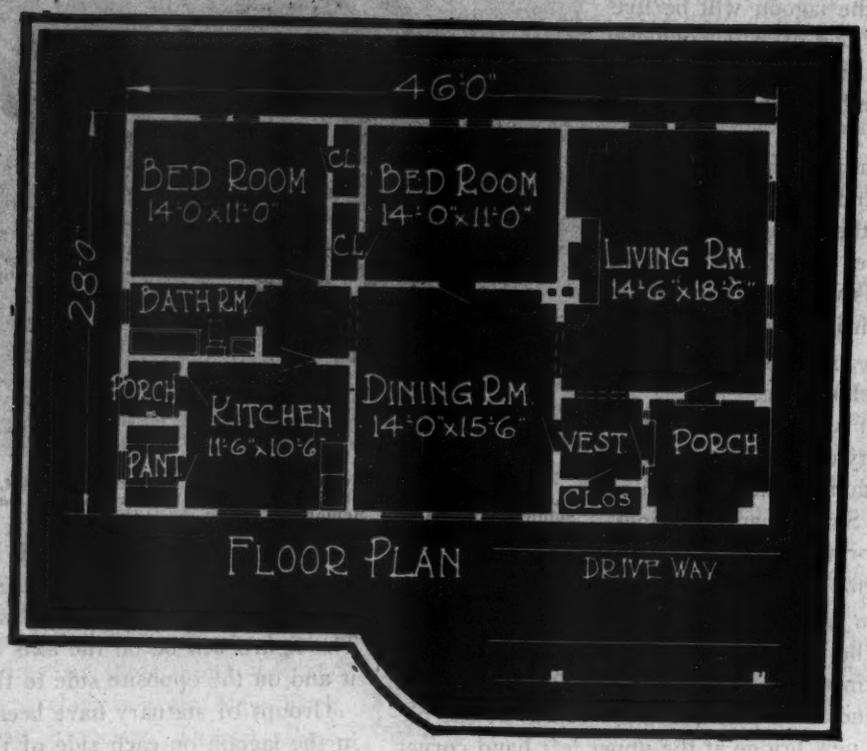
**There is an announcement of great importance to every contractor and builder on pages 54-55. Read the story of the man who failed to make the most of his opportunities so that you will not make the same mistake. This is the time of the year when you should be studying and perfecting your knowledge of the building business.**

# BLUE RIBBON HOMES

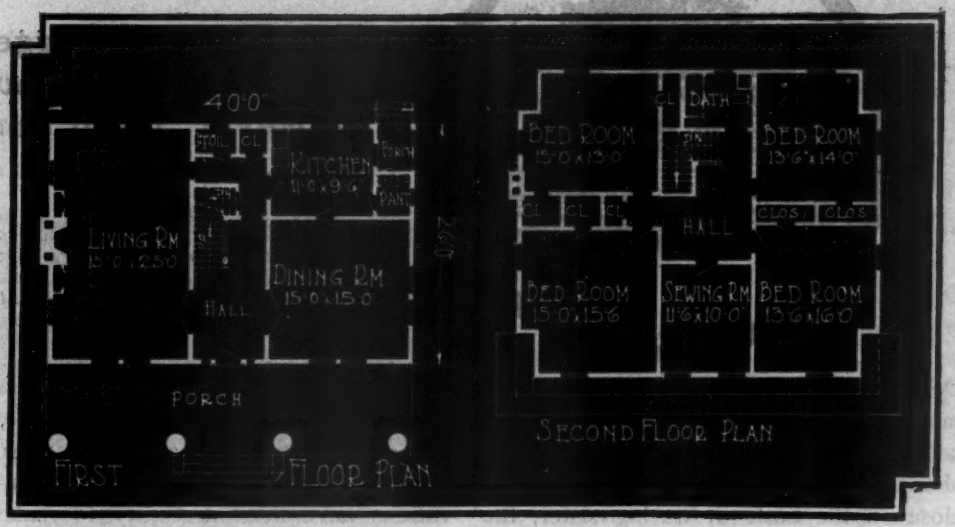
PRACTICAL & ARTISTIC

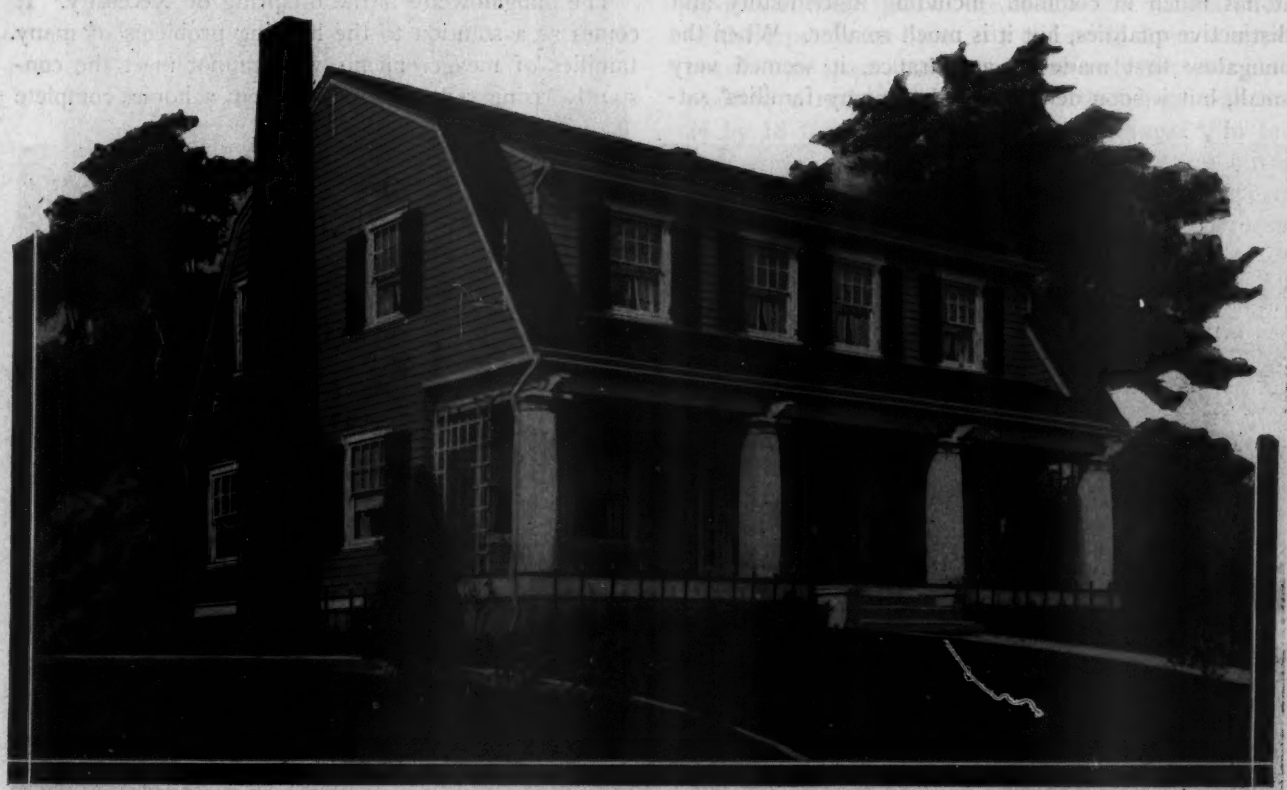


**CHARMING SPANISH MISSION TYPE BUNGALOW.** This is the style of architecture that came down in modified form from the early settlers of California. It has not only been adopted out there but is gaining in popularity in many parts of the country. Its simplicity recommends it, as does its quaint style and air of hospitality. The exterior is stucco over frame, brick or tile, with arched openings, recessed entrances, and other touches remindful of the days gone by. In this home you can enter the living room direct thru one door or by way of a small vestibule thru another door. The living room is of the large comfortable type with fireplace in center wall. It is connected by an opening with the dining room slightly smaller in size. There are two bedrooms, 14 by 11 feet each. The kitchen is small and conveniently near the dining room. Size of bungalow 28 by 46 feet.

# BLUE RIBBON HOMES

PRACTICAL & ARTISTIC



**DISTINCTIVE DUTCH COLONIAL HOME DESIGN. There is an air of substantial comfort about this attractive, well-built home. Adding to the inviting impression always offered by a Colonial design is the rather unique wide open front porch extending the full width of the house and recessed under the main roof, which is supported by four stout columns. The other features of the pleasing Colonial design are present, including the regularly spaced windows, quaint shutters,and large fireplace. Seven regular rooms and a sewing room are provided in the floor plans. The living room is 15 by 25 feet with typical Colonial fireplace. French doors connect it with the hall. Another pair open into the dining room opposite which is 15 feet square. A small complete kitchen is in rear of the dining room. Upstairs are four bedrooms of about equal size, unusually well-lighted and cheerful. The building is frame with concrete foundation and is 40 by 26 feet.**

# The Bungalowette

## Two Pages of Suggestions for Those Who *Must Have A Home* However Small and Modest

*Here is a very timely chance to do some good. No doubt some of our readers know of little homes like this built in an emergency and successfully lived in. Please write and tell us about them, and send a photo. It will help others.—The Editor.*

FRIENDS, the bungalowette. As charming as the season's debutante and as free from artificial adornment as the country girl of sweet sixteen, it makes its bow to the building fraternity.

It comes close on the heels of its big sister, the bungalow, which so recently captivated the country and still holds its charm in spite of the passing years. It has much in common, including individuality and distinctive qualities, but it is much smaller. When the bungalow first made its appearance, it seemed very small, but it soon demonstrated to many families' satisfaction that it is sufficient for their needs. And as the space-saving idea proceeds apace, the contractor and architect find that a home even smaller than the bungalow will suffice. Of course many building innovations have been necessary to make this possible, many new ideas in space-conservation have been conceived.

The bungalowette is the offspring of Necessity. It comes as a solution to the housing problems of many families of meager means who cannot meet the constantly rising rents. It offers them a home, complete

**Introducing the "Bungalowette," the Little Sister to the Bungalow. This House Is Only 24 by 18 Feet, but Has Three Comfortable Rooms with Many Modern Conveniences. It Will Save Many Families From Nights of Worry Over Getting Enough Money to Pay the Next Month's Rent.**

in every way, at an outlay that is astonishingly small and understandable.

Let us see why this is so. In the first place, its size means that much less material is needed. Here is a house 24 by 18 feet. You have seen many living rooms that are larger than this. Impossible, some builders will say, to make 400 square feet satisfy the needs of a household. Look at the floor plan on this page.

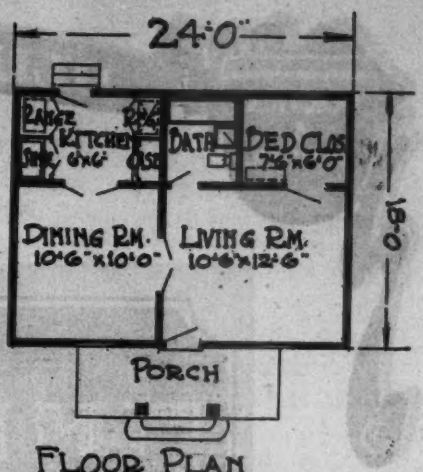
Each cubic foot in a house means much cost. It does not require the brain of a mathematician or professor in higher sciences to discover that if the number of cubic feet is reduced the expense will be reduced.

Material in a small building like this need not be of the best grade. Many short pieces of lumber can be used. There are no fancy doors, no bay windows, the millwork bill will be small. Wallboard will serve excellently as walls.

Space-Saving Wardrobe Device for Wall Beds. This Simple Invention Eliminates a Wardrobe or Dressing Closet.

As for rooms, just because a room is labeled dining room in the floor plan is no reason why it cannot serve as something else. Or if it is called living room is likewise no reason for it being restricted to that use. In a small house of the bungalowette type the idea of using one room for more than one purpose means the elimination of just that many rooms. In this bungalowette there are three rooms and bath. They serve as five.

The kitchen is 6 by 6 feet with all equipment and fixtures so arranged as to take up the smallest amount of space. It opens into a dining room 10 feet 6 inches by 10 feet, plenty large enough for a small family. The living room which also serves as a bedroom is 10 feet 6 inches by 12 feet 6 inches. A wall bed with bed closet has been built at one end of the living room and at night the bed can be lowered and the living room used as a bedroom.




FLOOR PLAN

Floor Plan, Showing How Space Is Saved in Room Arrangement.

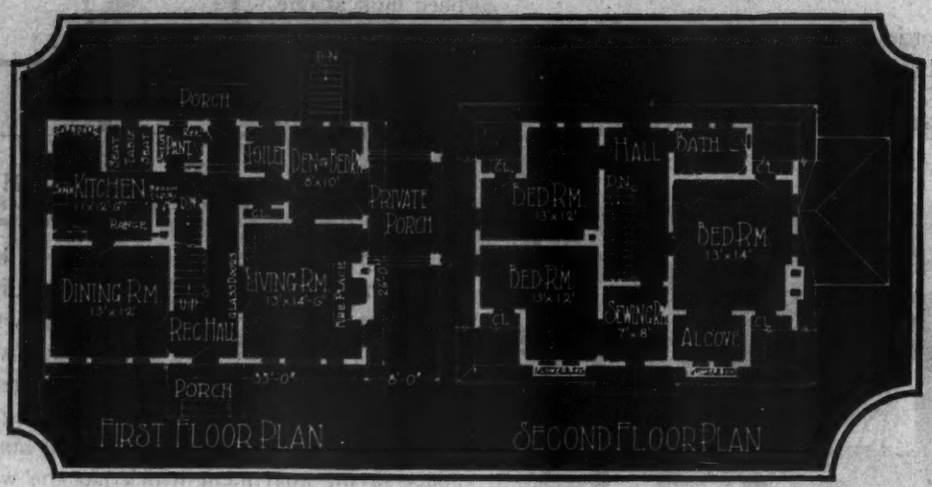
It is possible even to eliminate the bed closet, by using a recess type of wall bed and equipping the bed with a hanging wardrobe like that shown in the illustrations. This will hold the clothes without taking up any house room. It has twelve hangers which keep the clothes in position without wrinkling. This wardrobe is not only valuable in the small home, but in the space-saving apartment which has the wall bed. It is an outgrowth of the wall bed and is mechanically connected with its installation.

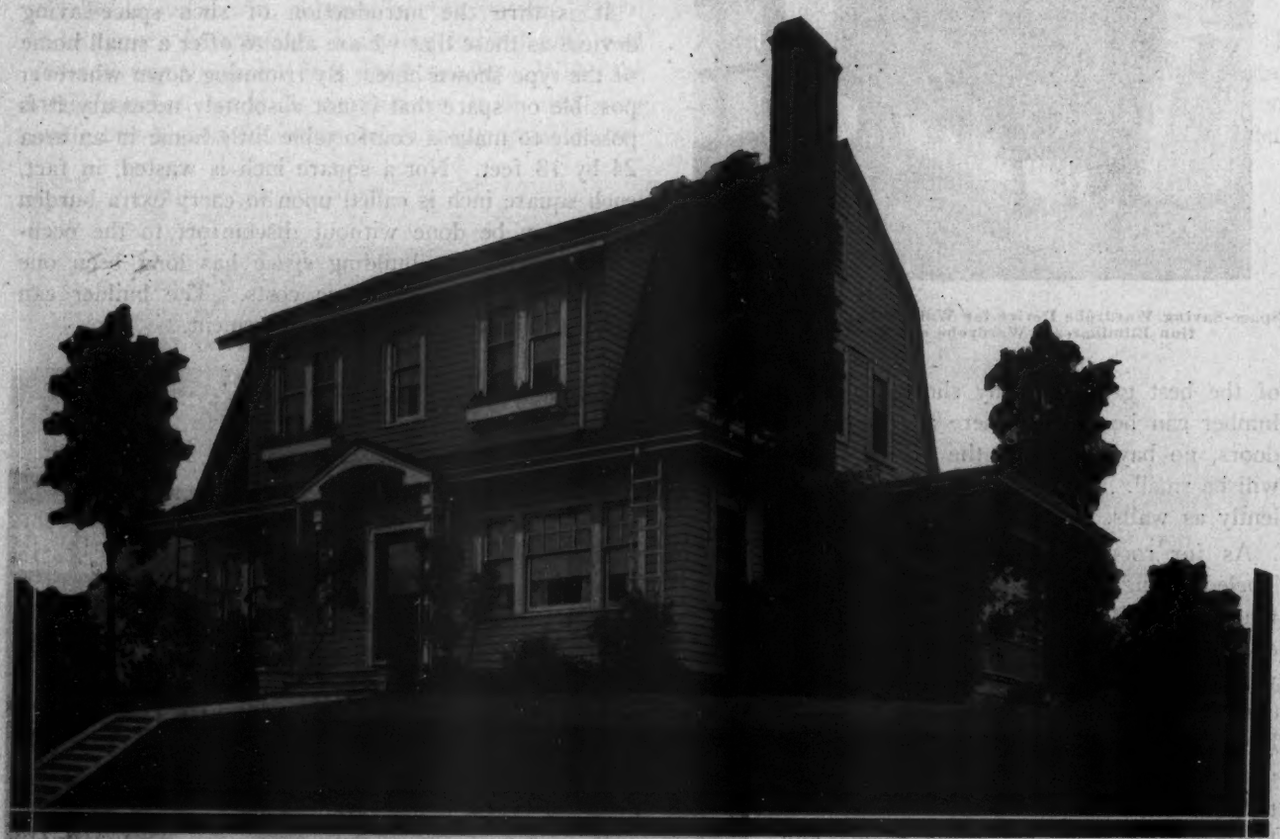
It is thru the introduction of such space-saving devices as these that we are able to offer a small home of the type shown here. By trimming down wherever possible on space that is not absolutely necessary it is possible to make a comfortable little home in an area 24 by 18 feet. Not a square inch is wasted, in fact, each square inch is called upon to carry extra burden which can be done without discomfort to the occupants. Waste in building space has long been one of the causes of excessive costs. The builder can reduce it by careful room arrangement.

As the Hanging Wardrobe Appears When the Bed Is Lowered for the Night. This Device Is Designed for Apartments and Small Homes.

# BLUE RIBBON HOMES

PRACTICAL & ARTISTIC

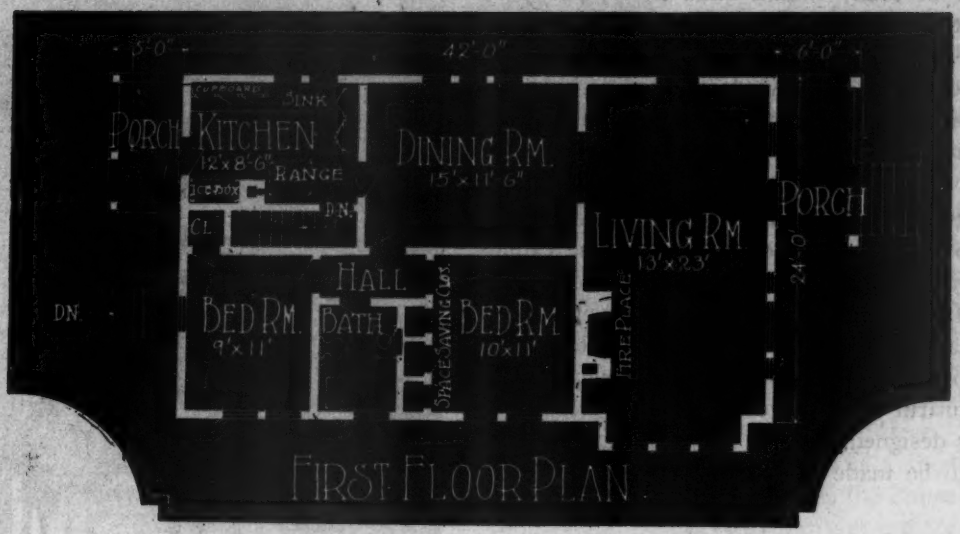


**EVER-DELIGHTFUL COLONIAL FLAVOR.** Variation in Colonial design is just as possible as variation in dress. This is the old-fashioned inviting, informal Dutch Colonial type with high gambrel roof. It is built of frame on a brick foundation. A small open private porch has been added to one side, off the den. If this room should be used as a bedroom the porch can be screened in and made a very desirable sleeping porch. The interior room arrangement is quite efficient. There is the customary large living room with its Colonial warmth and comfort, the dining room opposite, the small complete kitchen to the rear of the dining room. A small breakfast nook has been built in one corner of the kitchen. There is an extra toilet off the hall on the first floor. The bedrooms are large and well-lighted. There is also a sewing room on the upper floor. Size 35 by 26 feet.

# BLUE RIBBON HOMES

PRACTICAL & ARTISTIC



**SMALL MODEST HOUSE DESIGN.** Five rooms, all on one floor, is what this design provides for the prospective homebuilder. It is a well-built, small home, with frame shingle siding, low gable roof, and high basement. The five rooms are living room, dining room, kitchen, and two bedrooms. The living room is modeled along the latest lines in homebuilding, being large and roomy. It is 13 by 23 feet, with fireplace and excellent light from windows on three sides. In fact a living room of this type would be hard to beat even in more pretentious homes. The bedrooms are small but ample and considerable space has been saved by the use of space-saving closets. The kitchen occupies just 100 square feet but has the equipment necessary to maintain this household. The dining room is a very pleasant, well-lighted room, 15 by 11 feet 6 inches. The house is 24 feet wide and 42 feet long.

# Better Houses at Lower Cost

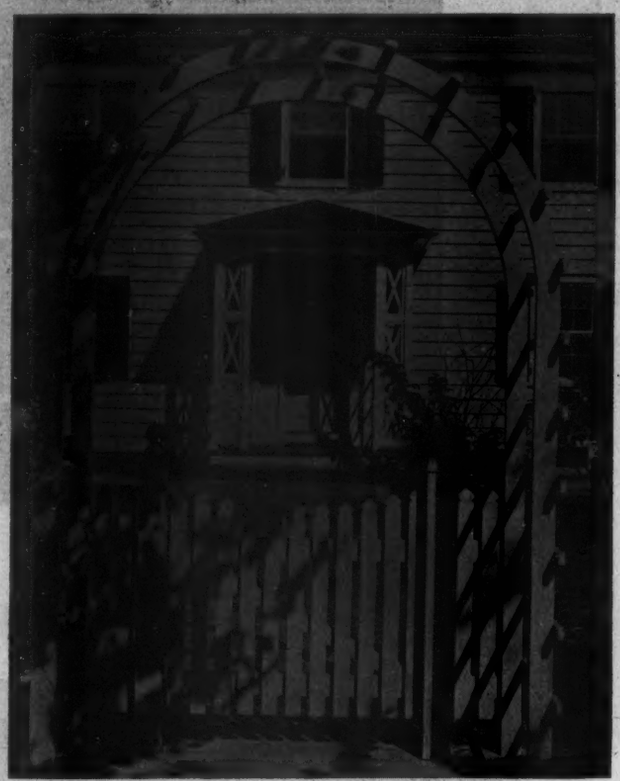
NEW DESIGNS IN ARCHITECTURAL FURNITURE ENABLE BUILDER TO SAVE CONSIDERABLE SPACE IN HOME

By Robert H. Moulton

PRESENT high costs of labor and building materials makes it imperative that the average home-builder of today should build as compactly as possible; that is, to so construct his house that, while putting into it all possible conveniences, there shall be no wasted space. A new departure in the form of built-in permanent furniture offers splendid opportunities in this direction.

It is well known that it takes a good architect to design an attractive, convenient home. The trouble is that the owner of the average small home cannot afford to pay the fee which the good architect is, in the nature of things, obliged to charge. Even supposing that he can meet this charge, he immediately faces another problem; it will cost a lot of money to pay for the beautiful and convenient things which the architect has designed, because they will in all probability have to be made to order to fit the architect's plans.

This problem seems to have been satisfactorily solved by the introduction of "standardized woodwork"; in other words, permanent furniture or details built-in as an integral part of the structure of the house itself. Millwork, or as the average builder speaks of it, woodwork, comprises from ten to twenty per cent of the cost of the completed house. It includes such items as doors and windows and their frames; stairs, base boards, mouldings, paneling, cupboards, window seats, porches, columns, bay windows or dormer windows, roofs, cornices, brackets, and built-in fixtures. These details are the things that give architectural character to a house, and they must be provided, no matter whether the house be of stone, brick, cement, or wood.



An Attrative Detail Showing More Standardized Woodwork in Doorway. Great Strides Have Been Made in This Manufacture in the Last Few Years.

Note the Simplicity and Attractiveness of This Porch, the Woodwork All Being Standardized. This Saving on Production Costs Enables the Contractor to Submit Lower Figure for the Home.

"Architect's furniture," as built-in details once were called, has always been in good taste. It lends dignity and character, a sense of having been planned beforehand, that makes the house containing it much more inviting than one with blank walls. But such furniture is expensive when specially designed for a house.

In addition to the attractive patterns now available in "stock trim," patterns carried regularly by lumber dealers, there is now on the market a large selection of standardized woodwork and built-in furniture, which is architecturally correct in every detail, possesses all the beauty and convenience of made-to-order woodwork, and because it is produced in quantities, is very much cheaper

Built-In Dressing Table with Closets on Each Side, a Convenience for the Small Bedroom and Home. It Saves Much Space and Reduces Building Costs Accordingly.

than the latter. With these genuinely good designs available, even the most expensive architect can save money for his client by using the new standardized patterns for most details.

Economies in space have been worked out in the plans of the standardized built-in permanent furniture which only an experienced architect would be capable of devising. These pieces, all built in as an integral part of the house, are really beautiful. For dining rooms there are corner cupboards which look as tho they might have been taken right out of one of those old-fashioned homes of New England; concealed china closets for those who prefer that kind of closet, sideboards in several artistic patterns; and buffets which can be set beneath high casement sash if the room permits.

For the bedroom there are built-in dressing tables with swinging mirrors at either side, a big mirror in the back, several drawers and two cabinets. The woman who knows the comfort and pleasure of sitting down to a dressing table when she performs her toilet could not be persuaded to do without one, but this built-in affair, besides being as attractive and convenient as the ordinary kind, has the additional advantage of being out of the way, not to mention its cheaper cost. In connection with the dressing table a tray case and a hanging closet may be installed, one on either side of the table, or these necessary adjuncts to a bedroom, providing plenty of trays and drawers to hold all of one's personal effects, may be built in somewhere else about the room. The open end trays provided in this article of furniture permit one to see what is in each tray without having to pull it out. There are also compartments for hats and shoes. When the door to one of these cases is closed, everything is hidden from sight, and there is nothing, apparently but a regular interior door.

With the problem of domestic service having reached an acute stage, the convenience of the kitchen arrangement has become a matter of vital importance. Therefore, the makers of the standardized woodwork have provided kitchen dressers and work tables, ironing boards which shut up on a hinge into a niche in the wall, the broom closets in what would ordinarily be lost space. All of these articles are built in such a way as to conserve space, while affording the maximum of convenience and utility. Daylight factories have proved that cheerful surroundings make contented workers and that well lighted rooms are sanitary work places. And since every kitchen is a food factory on a small scale, the housewife should have as pleasant a place to work in as the factory girl. Built-in kitchen furniture comes nearer to providing ideal conditions in this most important room of a house than any other arrangement.

✣

### Positively Swell

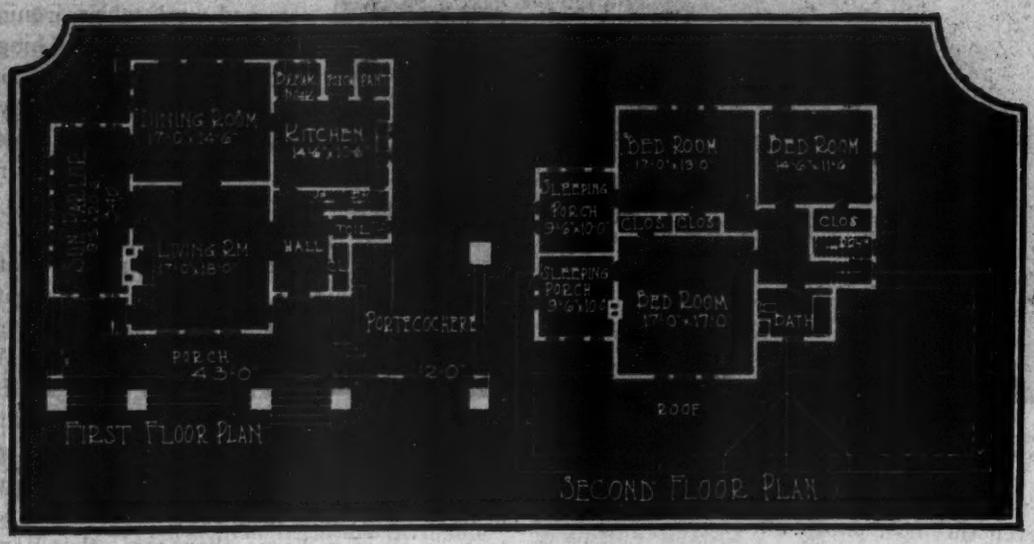
Lily—The Jimpson's new house is very pretty.

Tilly—Yes, with that artistic staccato finish.—New York Sun.

Corner of Kitchen Showing Built-In Cupboard and Ironing Board, Some of the Many Kinds of "Architectural Furniture."

# BLUE RIBBON HOMES

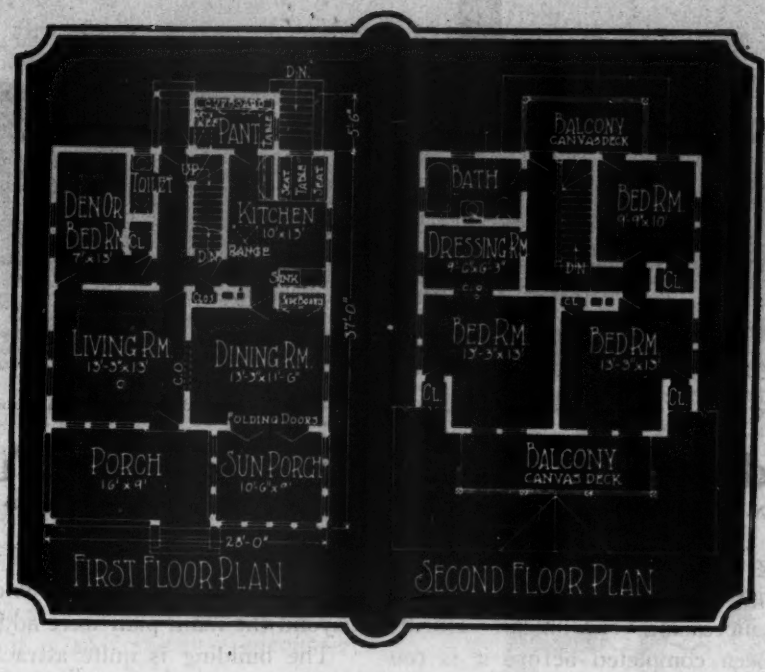
PRACTICAL & ARTISTIC



**ATTRACTIVE, ROOMY HOUSE OF WESTERN TYPE. The first impression this house offers is one of size, yet the actual dimensions do not bear this out. The many wings and projections help to make this house appear much larger than it really is. For instance, there is the portecochere, twelve feet wide, extending over the side driveway, there is a wing on the other side of the house about 10 feet wide containing the sun parlor. Another wing to the rear contains the kitchen. The house is frame on concrete with brick porch balustrades and supports. There are six rooms, sun parlor, and two sleeping porches. These are located in the same wing as the sunparlor on the second floor and are each joined with a bedroom. A small breakfast nook off the kitchen is an added convenience. Overall the house only measures 43 by 34 feet. A two-car garage is located in the rear.**

# BLUE RIBBON HOMES

PRACTICAL & ARTISTIC



**"A GEM FOR ANY SETTING."** A snappy-looking stucco home of economical lines with sunparlor. This is the type of home that will appeal to many families who need plenty of room but cannot afford a real large house. The room arrangement of this dwelling has been carefully planned and as a result the house seems quite large, altho the actual dimensions are only 28 by 37 feet. On the first floor there are four rooms and sunparlor, not to mention a fair-sized front porch. The fourth room can be used either as a den or bedroom as the owner sees fit. Folding or accordion doors separate the dining room from the sunporch which can be used as a breakfast room. Three bedrooms are located on the second floor and all three open out on to balconies, one in the rear and one in front covered by special canvas flooring. There is a two-car garage in the rear.

Komensky School, Berwyn, Ill., a One-Story School Building Which Can Be Enlarged Indefinitely at Small Cost. There Are No Fire Hazards.

# Building a School House for the Future

**THIS MODERN BERWYN, ILL., STRUCTURE IS ONE-STORY TYPE ADAPTED TO UNLIMITED ADDITION AT VERY SMALL COST**

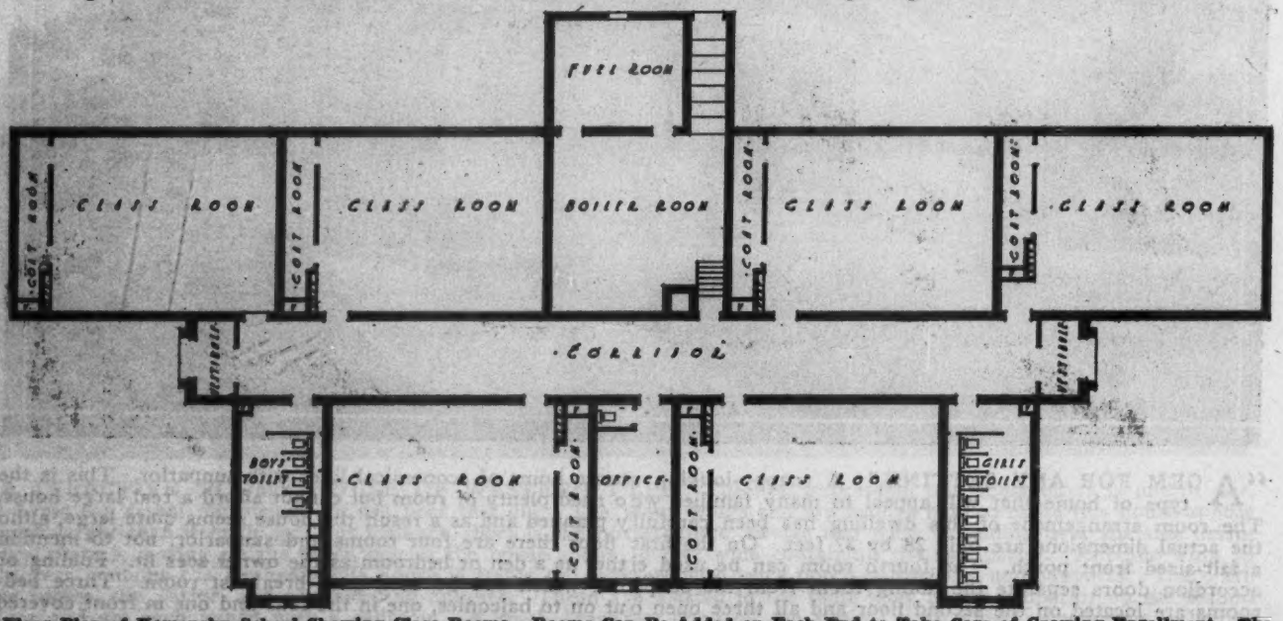
ONE of the big problems of the school board in towns, large or small, is to take care of the rapidly increasing enrollment. Hardly has a new building been completed before it is too small for its requirements. That means either a new building or an addition to the original building, which in turn means quite a bit of expense.

A practical solution to this problem is offered in the Komensky School, Berwyn, Ill., designed by G. W. Ashby the well known school architect, Chicago, and shown in the illustration above. This structure is quite novel in school building architecture, being of the one story type, the reason for which will soon be explained. The arrangement of this one story building is such that new rooms can be added on indefinitely at half the cost of an addition to a higher building. In fact the two end rooms which project beyond the main plan were added at a very small cost.

The building is quite attractive in design, built of brick with ornate cut stone trim. There is no basement, the boiler room and fuel room being on the main floor rear.

Moreover, there are no fire hazards, no stairs to descend in case of fire and consequently no danger of trampling or crowding. This is a big factor to consider in school construction and one that will find favor with parents.

There are six main class rooms with individual coat rooms. All class rooms are equipped with slate blackboards. The lighting facilities are abundant.




Floor Plan of Komensky School Showing Class Rooms. Rooms Can Be Added on Each End to Take Care of Growing Enrollment. The Building Overall Is 60 by 168 Feet.

# Law for the Builder

RIGHT OF SUBCONTRACTOR TO RECOVER UPON PROMISE OF OWNER TO PAY HIM IF PRINCIPAL CONTRACTOR FAILS TO DO SO.

By Leslie Childs

THE law books contain a great many cases growing out of building contracts which involved a construction of the second provision of the statutes of frauds. This provision is a part of the seventeenth section of the English statute of frauds which has been substantially followed in the majority of the states, and provides in substance as follows:

"That no action shall be brought to charge the defendant upon any special promise to answer for the debt, default, or miscarriage of another person, unless the agreement upon which such action shall be brought, or some memorandum or note, shall be in writing, and signed by the party to be charged therewith, or some other person thereunto by him lawfully authorized." In other words, providing that before the promise to pay the debt of another can be enforced, the promise must be in writing and signed by the one making the promise.

Now this is perhaps one of the most widely known rules of law, and it may well be doubted if there is one contractor or builder out of a hundred who is not familiar with it. And yet, owing to the peculiar circumstances in which it is so frequently encountered in the buildng and construction field, it is a point that has been overlooked in hundreds of instances and the cause of many lawsuits. In particular has the point been a trouble maker for subcontractors, where the principal contractor has failed to make good, and the former has relied upon a promise from the owner. For example:

A building contract is entered into and the principal contractor subcontracts certain parts of the work. Everything goes along fine for a time, when some day the principal contractor fails to pay the subcontractor. The subcontractor becomes alarmed and goes to the owner about it. The latter is financially responsible and assures the subcontractor that he will be paid. Now right here is where the trouble usually starts.

### Promise to Pay Debt of Another Should be in Writing

If the subcontractor is prudent he will have the owner to put his promise in writing and sign it. If, as in many cases, he does not, and merely depends upon the oral promise of the owner, it may be a doubtful question whether or not the owner can be forced to keep his promise. This for the reason that the foregoing statutes of frauds provides that any promise to pay the debt of another must be in writing if it is to be enforced. And unless the promise of the owner amounts to a new contract on his part, his promise to pay may be merely a promise to pay the debt of the principal contractor, and if so it cannot be enforced unless it is in writing.

The application of this rule of law to the building field may be illustrated by the brief review of a leading case. For this purpose Smith vs. Burditt, 95 N. Y. S. 188, will serve. The facts, briefly stated, were as follows:

A contract for the construction of a dwelling house had been entered into. The principal contractor sublet a part of the contract to the plaintiff. The latter proceeded with his part of the work and after doing a considerable part of it became alarmed about the security of his principal contractor for payment.

He thereupon told the owner about his fears, and the latter, it was alleged, told him that he (the owner) would pay him if the principal contractor did not. With this assurance the plaintiff continued on the work. This promise was not in writing, however, and thereafter the principal contractor, it seems, failed to pay, and the plaintiff brought the instant action against

The Subcontractor Is Out of Luck Because He Did Not Have a Written Promise from the Owner.

the owner on his (the owner's) promise to pay if the principal contractor failed to do so.

The plaintiff obtained a judgment in the lower court. The owner prosecuted an appeal, and the higher court in passing upon the phase of the record relative to the plaintiff's right to recover upon the promise of the owner, among other things, said:

### Subcontractor Could Not Enforce Promise

"The complaint in part alleges in terms an agreement by defendant (owner) to pay for the work and materials furnished (subcontractor) * * * 'if the said Andrew J. Ryan (principal contractor) failed or neglected to do so.' Such a promise cannot be enforced by reason of the statute of frauds. * * *"

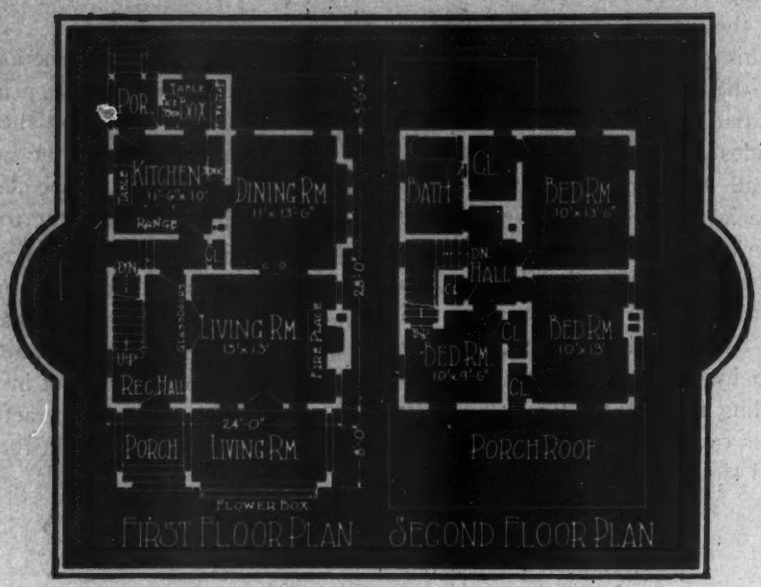
The higher court in conclusion reversed the judgment rendered in favor of the subcontractor in the lower court. Holding that under his complaint the subcontractor could not enforce the promise made to him by the owner because the promise was not in writing, and did not satisfy the statute of frauds.

As noted heretofore, the law books contain a great number of cases of this kind, and the courts of the different states are not in accord in construing the

*(Continued to page 111.)*

# BLUE RIBBON HOMES

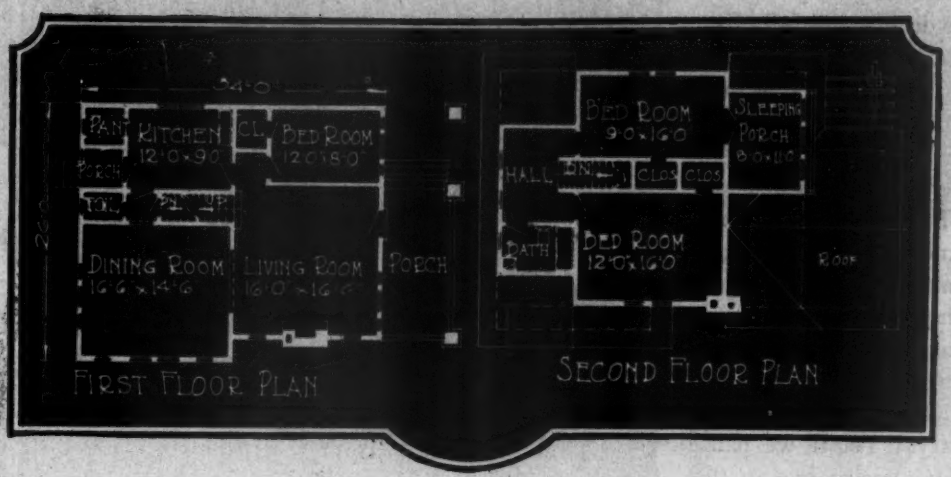
PRACTICAL & ARTISTIC



**"A SHADY PORCH FOR ALL HOURS OF THE DAY."** It is surprising how important the porch has become in determining the desirability of a home. Progressive builders have soon become aware of this fact and are specializing in this feature. This home, while not particularly striking, has many of the features that make it just the house for the medium-sized family. The exterior is quite simple, part stucco and part shingles. The major part of the large front porch has been screened in and provides an excellent playroom for the children or resting place for the grownups. Living room, dining room, and kitchen are located on the lower floor. Note the built-in-equipment in the small, compact kitchen. Three bedrooms are located on the second floor and there is ample room for more on the third which has plenty of windows and a high ceiling. The house is 24 feet wide and 28 feet long, exclusive of porches.

# BLUE RIBBON HOMES

PRACTICAL & ARTISTIC



**A COZY HOME, SIMPLE AND ATTRACTIVE.** To all outward appearances it is a bungalow yet it has an upstairs, a feature which many people demand. Builders find some people want all the rooms on one floor while others insist on the home with the bedrooms upstairs. This charming little home is built of frame on solid concrete foundation and has a very pleasing exterior trim and a few pergola touches that are worthwhile. There are six rooms in all, and a sleeping porch. The front door opens directly into the living room, avoiding any waste of space for vestibule. The living room is 16 by 16 feet 6 inches, a large room for this size house, and is connected with the dining room by a double doorway giving a stretch of over thirty feet. One small bedroom and a modern kitchen take up the remainder of the first floor. Upstairs are two good sized bedrooms and sleeping porch facing front. The house is 26 by 34 feet.

# Some Suggestions in Bathrooms

ANOTHER ARTICLE IN SERIES ON TRIM, EQUIPMENT AND LOCATION OF ROOMS IN HOUSE

BATHS are not new. Back before the time of Christ the Romans and Greeks had palatial bath houses; and the bath was one of the important ceremonies of their everyday life.

But bathrooms are new. It seems that after the decline and fall of the ancient civilization, this practice of cleansing the body in public or private baths fell into disrepute and for centuries the bath was not considered seriously by the masses. Today in most of Europe the bathtub is still an unknown commodity and the bathroom only known in the houses of the wealthy. The vast mass of Europeans have yet to taste of the luxury of this simple institution which to us has become quite necessary. Yet if we pause to consider, not every one in this progressive country of ours enjoys the benefits and advantages of a permanent bathroom. Many farm homes have just begun to include this feature, for the problem of running water has always been an obstacle.

Ideally Equipped Bathroom of More Elaborate Lines. The Bath Is Located in a Separate Room for Convenience. Note the Tile Floor and Wainscoting.

It is only within the last thirty or forty years that the old saying, "Cleanliness is akin to godliness," has had a fair working chance to demonstrate its verity. Tales are plenty about the days of our early settlers who very often sewed themselves into their winter outfits and did not change until the following spring. Cold northern winters possessed untold terrors for those bold enough to try the crude methods of bathing in those days, and as a result the custom was neglected to a large extent. Saturday night became a red-letter day in the calendar, for it was the signal for wholesale operations.

End View of Bathroom for Average Home, Showing Built-in Cabinet with Medicine Chest and Mirror and Drawers for Linen, etc. Two Small Windows Are Used Instead of One Large One.

But with the rapid advance in medical science came the insistence for personal cleanliness and very soon the bathroom as a separate component of the house plan came into being. At first the equipment was crude, far from artistic, but utilitarian. It was only a matter of time until the old "tin-tub" was replaced by better looking enameled iron or porcelain, ugly lead pipes by polished copper or nickel. Tile floors and wainscoting soon transformed this room into a place of beauty and perfect sanitation.

# Many New Ideas in Built-In Fixtures



The development in plumbing and plumbing fixtures within the last ten years has been remarkable, and no one realizes it better than the architect and building contractor. It has helped him immensely in his work of building comfortable, satisfactory homes for his clients. For a modern bathroom is an essential that will go a long way in determining the ultimate comfort of a dwelling.

The size, equipment, and location of a bathroom is no mean question for the architect and builder to decide. In the first place, it cannot take up too much space. Secondly, it must be located where it is convenient to the sleeping rooms. It is not good judgement to locate a bathroom so that it opens into a kitchen, dining room, or even into a hall facing either of these two rooms. Its logical position is off a hall which gives access to the bedrooms.

To make this bathroom as small as possible, the use of built-in fixtures is essential. It does not require a whole lot of room to accommodate the new models of

**Another Type of Bathroom Cabinet Showing Mirror Arrangement. This Equipment Aids the Architect and Builder in Cutting Down Space Required for Bathrooms.**

**The Bathroom Complete. Here We Have a Sanitary, Spick-and-Span Room with Tile Floors and Walls and All of the Fixtures That Go to Make a Luxurious Bathroom. There Is the Enclosed Shower, Built-in Tub, Lavatory, Built-in Toilet Chests and Mirrored Door.**

bathtub, closet, lavatory, or showers, cupboard, medicine chest and can be accommodated quite handily, as many of the illustrations demonstrate.

The advantages of tile flooring or some other compostion material that will readily drain water and can be easily cleaned has been pointed out many times in past numbers of the AMERICAN BUILDER. This type of floor and wall covering not only increases the sanitary efficiency of this room, but adds infinitely to the appearance.

It may be well for some home owners to say the "old washtub" is good enough, but the satisfaction of many millions who have modern bathrooms cannot be silenced nor denied. The day when every home in the country whether in city or country will have a bathroom is not far distant and the length of this time depends in large measure upon the architects and builders who are building and remodeling homes.

**Bathroom with Smaller Cabinet for Towels, Etc. The Modern Bathroom Occupies Very Little Space and Is so Built as to Be Thoroly Sanitary and Easily Cleaned.**

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## Electrical Suggestions

*(Continued from page 77.)*

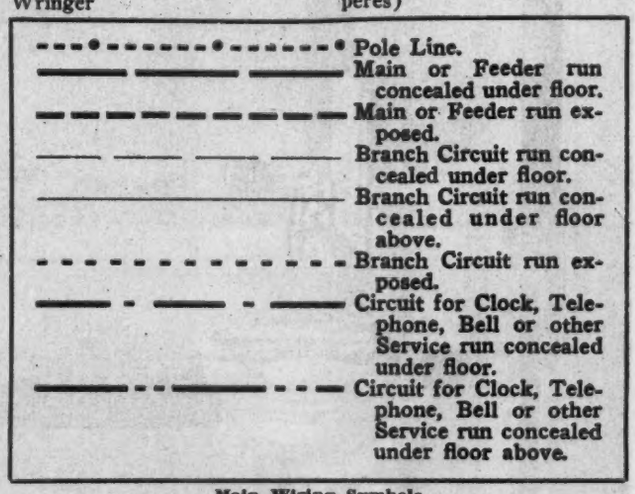
care to lay out his convenience outlet wiring upon lines which will not only avoid the pitfalls of inadequate wiring but for that degree of convenience, comfort and safety which distinguishes the electrically finished building.

### TABLE II

SOME APPLIANCES AND USES FOR ELECTRICITY IN THE HOME

| *General House Use* | *Dining Room* |
|---|---|
| Lighting | Chafing Dish (4 to 6 amperes) |
| Vacuum Cleaner | |
| Fan Motors (0.2 to 1 ampere) | Percolator (3 to 5 amperes) |
| Bell-Ringing Transformer | Cigar Lighter (0.25 amperes) |
| *Cellar Workshop* | Water Heater (1.5 to 10 amperes) |
| Grinder | |
| Glue Pot (2 to 5 amperes) | Radiator (2.5 to 5 amperes) |
| *Kitchen* | Samovar (4 to 5 amperes) |
| Range (Requires special circuit) | *Reception Room* |
| | Table Lamps |
| Tea Kettle (4 to 5 amperes) | Electric Piano |
| Disc. Stove (2 to 6 amperes) | Electric Talking Machine |
| Frying Pan (5 to 6 amperes) | *Garage* |
| Radiant Grill (5 to 6 amperes) | Fire Pumps |
| | Portable Drill |
| Toaster (4 to 6 amperes) | Grinding Machine |
| Coffee Grinder | Buffing Mahine |
| Meat Chopper | Charging Batteries |
| Bread Mixer | *Bedroom or Boudoir* |
| Soldering Iron (1 to 2 amperes) | Curling Iron |
| | Bed Pad (0.5 to 1 ampere) |
| Breast Drill | Reading Lamp |

| *Kitchen (Cont'd)* | *Bedroom or Boudoir (Cont'd)* |
|---|---|
| Small Motor for Tools | Ozonator |
| Portable for Cleaning Heater | Hair Dryer (0.5 to 0.75 amperes) |
| Egg Beater | |
| Silver Polisher | Massage Vibrator |
| Knife Grinder | *Miscellaneous* |
| *Laundry* | |
| Washing Machine (2 to 6 amperes) | Sewing Machine |
| | Milk Warmer (3 to 5 amperes) |
| Irons (4 to 6 amperes) | |
| Laundry Machine | Shaving Mug (1.5 to 5 amperes) |
| Wringer | |


Pole Line.
Main or Feeder run concealed under floor.
Main or Feeder run exposed.
Branch Circuit run concealed under floor.
Branch Circuit run concealed under floor above.
Branch Circuit run exposed.
Circuit for Clock, Telephone, Bell or other Service run concealed under floor.
Circuit for Clock, Telephone, Bell or other Service run concealed under floor above.

**Main Wiring Symbols**

✣

AN unprecedented increase was made in the membership and assets of building and loan associations in the United States during the year 1920, according to the Comptroller of the Currency. The figures indicate that the increase in the 1920 assets of these associations was greater than the gain made the two preceding years, while the growth in the membership was almost equal to that in the three preceding years.

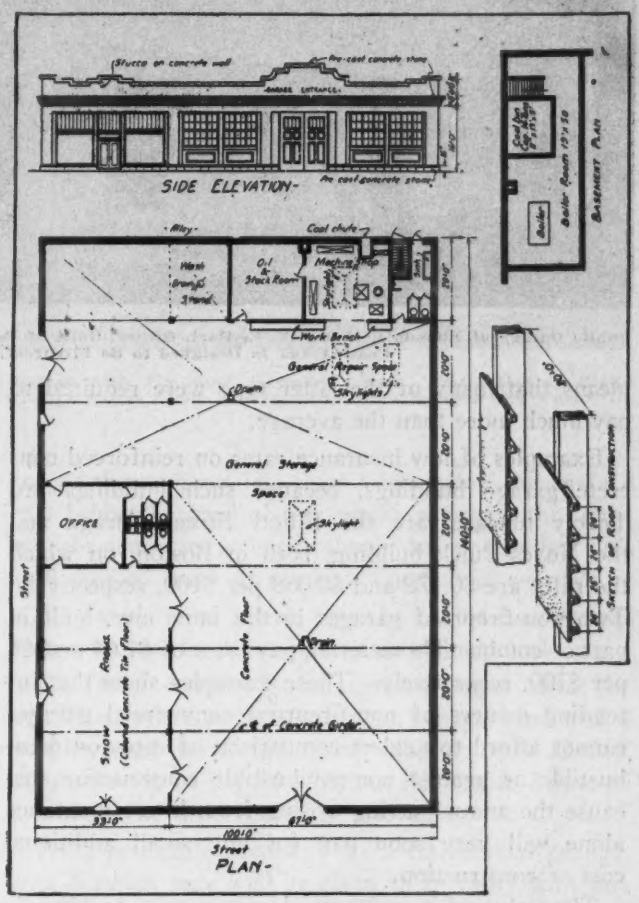
# Fire Menace of Parking Solved by Concrete Garage

**MANY COMMERCIAL GARAGES NEEDED IN CITIES TO REMOVE DANGER CAUSED BY PARKING MACHINES ALONG STREETS**

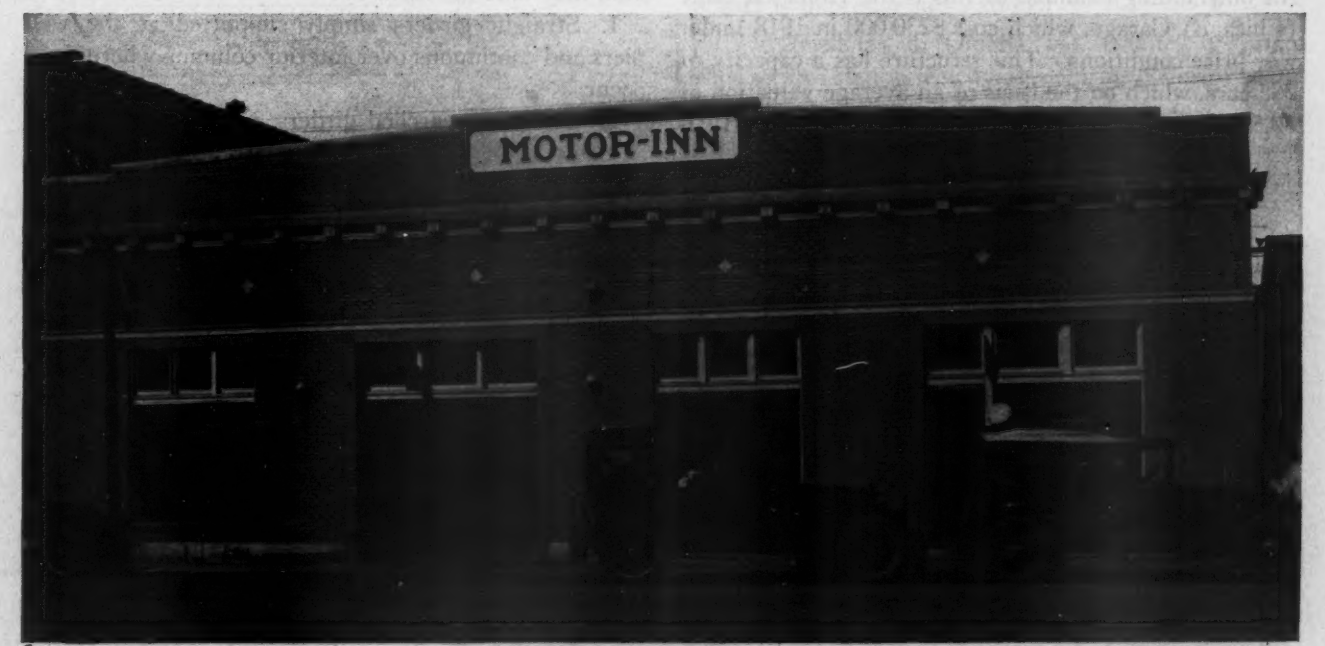
**By H. Colin Campbell**

MOST of our larger cities are becoming aroused over the danger to business property thru the congestion of streets due to the practice of parking automobiles in the downtown or busy sections. This practice greatly aggravates the fire menace because of the difficulties encountered by fire departments in responding and operating effectively to fight fires to which they are called. A number of fire chiefs in large cities have recently expressed themselves forcibly on this question and have pointed out that the sooner the downtown street parking practice is done away with, the better it will be for the safety of business property. The privileges are being more and more restricted and not until housing facilities are provided for cars will the disadvantages that street parking causes the fire department be removed.

When a downtown alarm rings, it is a practice to send out all available fire apparatus from certain fire stations on the first call. At best, modern fire apparatus is heavy, cumbersome and hard to maneuver, particularly where street congestion is aggravated by car parking. The only practical way of disposing of this menace, therefore, is to build commercial garages and these, from the very nature of occupancy, must be of firesafe materials to afford maximum protection to cars and to adjoining property. A structure built even in part of combustible material threatens the business district and the garage business itself with great possible loss from fire. In a report of the State Insurance Commission of Texas, dated April 16, 1919, the average insurance rate on all garages in that state is shown as $1.53 per $100 for the year 1919. This average rate includes the rates on fireproof, as well as non-fireproof garages, which




**Model Floor Plan and Construction Details for Combination Public Garage and Show Rooms. The Building Is Stucco with Pre-Cast Concrete Stone Trim, 100 Feet Wide and 140 Feet Long.**




**Motor Inn Garage, Detroit, Minn., Built of Concrete Brick. This Type of Fireproof Structure Is Designed to Cut Fire Risk and Insurance Rates, and Remove Menace of Public Parking.**

Public Garage at Ellendale, N. D., W. E. Hart, Owner, Built of Reinforced Concrete J. W. Winkle & Son, Contractors. It Has a Stucco Coating and Is Designed to Be Fireproof. It Has a Show Room With Offices Above.

means that many of the latter type were required to pay much more than the average.

Examples of low insurance rates on reinforced concrete garage buildings, because such buildings are thoroly firesafe, are the Elliott Street Garage and the Noyes-Buick building, both in Boston, on which the rates are $0.178 and $0.068 per $100, respectively. Two non-fireproof garages in the same city, built in part of combustible material, pay rates of $1.64 and $3 per $100, respectively. These examples show that intending owners of non-fireproof commercial garages cannot afford to neglect comparison of rates on combustible as against non-combustible construction, because the annual saving arising from lower insurance alone will very soon pay for any small additional cost of construction.

The value of a commercial garage as a building is ordinarily much less than the value of its contents. An outstanding example of this is the Hotel La Salle (Chicago) Garage, which cost $230,000 in 1918 under war price conditions. This structure has a capacity of 265 cars, which on the basis of an average valuation of $2,500 per car, means $660,000 worth of property is housed. This structure is absolutely firesafe, being built of reinforced concrete thruout, and a fire starting anywhere in the building could be prevented from spreading to other floors or other parts of the same floor. In some types of buildings it often happens that damage from fire is less than damage from water used to fight fire on one floor, leaking thru to other floors. In concrete buildings this danger is reduced to a minimum, if not entirely eliminated.

Clear floor space, unobstructed by columns is a highly desirable feature in a garage because the movement of cars is facilitated. Buildings of ordinary width may be designed of reinforced concrete so as to omit interior columns. In buildings having extensive ground or floor area division may be into wide sections, the space between rows of columns being wide enough to operate as a separate floor unit of the garage. Long span reinforced concrete construction of this kind may take the form of:

1. Straight girders simply supported at the wall piers and continuous over interior columns where these occur.
2. Straight or arched girders, monolithic with wall piers and columns and forming with them a rigid frame.
3. Open reinforced concrete trusses.
4. Concrete arches with steel tie-rods to take the thrust.

As a general rule trusses should be used only where the span is so great or the load so heavy as to render the other types impracticable.

In addition to being built of the highest type of fire resistive construction, a garage should be planned to minimize the possibility and effect of explosions of gasoline and to prevent spread of fire from whatever cause. The designer or builder should familiarize himself

Another Concrete Garage That Calls for Reduced Insurance Rates Because of Its Strong Structural and Fireproof Features. Many of These Garages Are Needed in Cities to Accommodate Cars Which Cannot Be Parked on the Streets.

with the requirements of the building code of the city in which the structure is to be located. Even tho the city or town has no code, he should nevertheless follow the requirements of the building code of some large city and should carefully comply with insurance regulations to secure the maximum benefit of minimum insurance rates. The building should be well lighted and ventilated; wall and column outlets should be placed at frequent intervals for the attachment of lamps and cords in order that cars may be properly cleaned and inspected. Dark corners should be avoided because they invite accumulation of dirty and oily rags, floor sweepings and other rubbish.

All-Concrete Public Garage with Tile Roof, Greenfield, Mass. Excavation to Right Is for Similar Type Twice as Large. This Is Typical of Garages That Are Found in Many Small Towns.

Ventilation should be sufficient to carry off exhaust gases from cars which, in addition to being offensive, are detrimental to the health of employes.

If the garage is to be more than one story high, careful consideration should be given to the advisability of substituting ramps for elevators if comparative costs show advantage for the former in facilitating transfer of cars to and from various floor levels.

A few points pertaining to the storing and handling of gasoline, taken from the "Regulations for Storing and Handling of Inflammable Liquids," published by the National Board of Fire Underwriters, New York, should be observed.

1. Tanks should be buried underground with the top of the tank not less than 3 feet below the surface and below the level of any piping to which the tanks may be connected. Tanks should be surrounded with well tamped earth or sand, or encased in concrete.

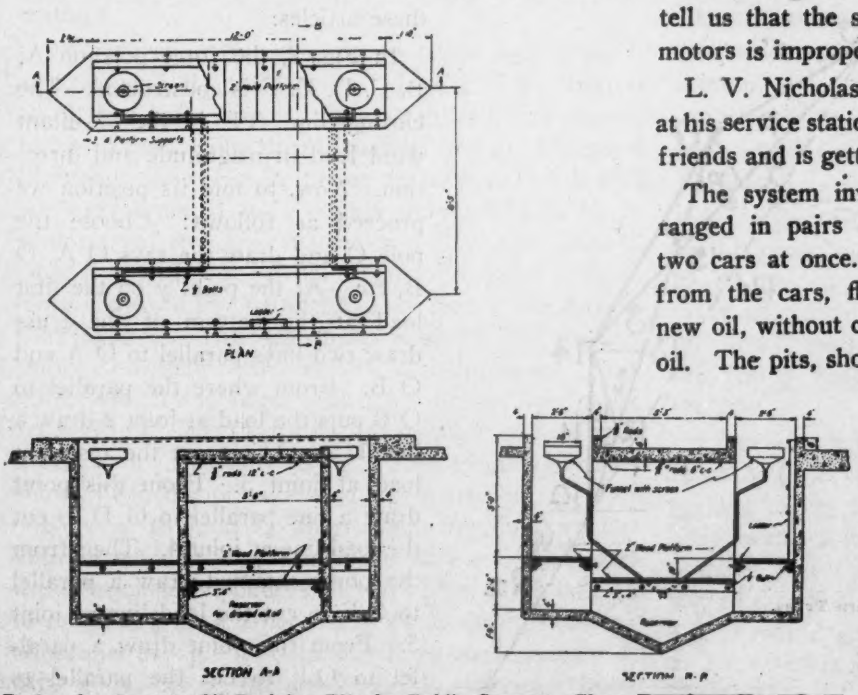
2. Tanks, if of metal, must be coated on the outside with tar or other rust resisting material.

3. Tanks containing inflammable vapor must be ventilated with a permanently open vent covered with a weatherproof hood and terminating at least 12 feet above the top of the fill pipe, but not within 3 feet of a window or other building opening.

As a profitable accessory to a commercial garage, consideration may well be given to specially built pits for draining customers' cars. Motor manufacturers tell us that the source of 90 per cent of repairs on motors is improper lubrication.

L. V. Nicholas, of Omaha, has installed a system at his service station which has made his company many friends and is getting a big trade in motor oils.

The system involves the use of concrete pits arranged in pairs so that each pit can accommodate two cars at once. The attendants drain the used oil from the cars, flush it out thoroly and refill with new oil, without cost to the owner except for the new oil. The pits, shown in the accompanying sketch, are so arranged that oil can be easily drained from the crankcase, rear axle, or transmission case without loss of time. Attendants can drain, flush and refill a crankcase in five minutes.




Design for Concrete Oil Draining Pits for Public Garages. These Drawings Show Cross Longitudinal Sections and Top View.

Accompanying illustrations show designs for concrete pits such as described in the foregoing paragraphs, based largely on the fundamental details of the pits described.

# DESIGN of SAFE CONSTRUCTION

By Charles W Leigh

Associate Professor of Mechanics, Armour Institute of Technology

## Wind Load Stresses in Barn Truss

ARTICLE 26 OF EXTENSIVE SERIES ON STRENGTH OF MATERIALS

IN the January number of the AMERICAN BUILDER I gave a discussion of the stresses in a type of roof truss quite commonly used in barn construction. In this article I propose to give an analysis of the same roof truss under a wind load.

The reader will recall from the last article that on account of the collar piece at the top and also the floor beams at the bottom of the truss, the assumption was made that the truss was a three-hinged arch. The analysis was given on this basis:

We will assume that the maximum wind pressure on a vertical surface is 40 pounds per square foot of area. The trusses are assumed to be 12 feet apart. The vertical part of the truss is 10.5 feet high. Then the pressure is $10.5 \times 12 \times 40 = 5{,}000$ pounds, approximately.

Then joint 2 of Fig. 1 will carry one-half of 5,000 or 2,500 pounds. Joints 1 and 3 take one-fourth or 1,250 pounds. I choose for my force scale 2,500 pounds = one-half inch. These forces are then drawn.

From joints 3 to 4 is 16 feet. Then the roof area to carry is $16 \times 12 = 192$ square feet. Now the normal wind pressure in this area is found from

$$P_n = P\frac{2 \sin A}{1 + \sin^2 a} \quad \ldots\ldots\ldots\ldots (1)$$

Where $P = 40$ and $A = 60$ degrees. Now sin 60 degrees = .866.

Substituting in (1) gives

$$P_n = 40\frac{1.732}{1 + .75} = \frac{6{,}928}{1.75} = 39.6$$

For ease in figuring I have called this 40 pounds. Then the pressure is $192 \times 40 = 7{,}680$, one-half of which is carried at each joint. These forces are shown at joints 3 and 4.

From the joints 4 to 5 is 12 feet of incline 30 degrees. Then since sin 30 degrees = ½, from (1)

$$P_n = 40\frac{2 \times ½}{1 + ¼} = \frac{40}{1.25} = 32 \text{ pounds}$$

The total pressure on this roof area is

$12 \times 12 \times 32 = 4{,}600$, approximately

There is then a force of 2,300 pounds at joints 4 and 5 each. These are shown in the figure.

Now at joints 3 and 4 there are two forces acting. Their resultant is found by completing the parallelograms as shown. The diagonals are the resultants and are the forces used at the joints. Fig. 1 is now lettered a, b, c—V, according to the notation used in all these articles.

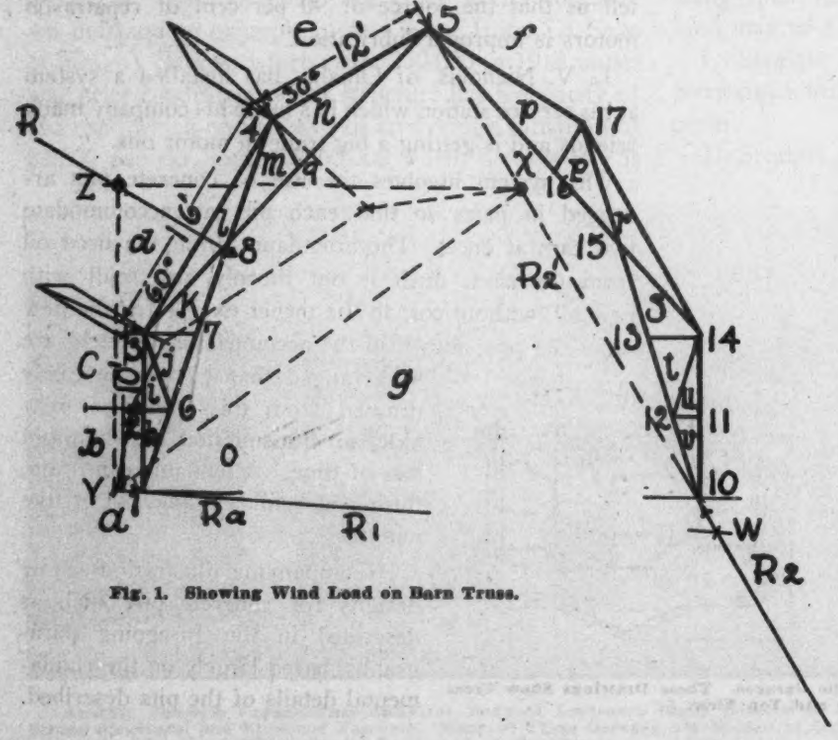



Fig. 1. Showing Wind Load on Barn Truss.

In Fig. 2, the force polygon A, B, C, D, E, F is constructed. The closing line A F is the resultant wind load in magnitude and direction. Now, to find its position we proceed as follows: Choose the pole O and draw the rays O A, O B, etc. At the point y on the first load at the bottom of the truss draw two lines parallel to O A and O B. From where the parallel to O B cuts the load at joint 2 draw a line 11 to O C to cut the resultant load at joint 3. From this point draw a line parallel to O D to cut the load line at joint 4. Then from the point obtained draw a parallel to O E to cut the load line at joint 5. From this joint draw a parallel to O F to cut the parallel to O A, meeting at joint z. Then thru

z draw a line equal and parallel to A F. This is the resultant R of all the wind loads.

Now the entire truss is in equilibrium under the resultant R and the reactions at the bottom of the truss. They must meet in a common point. Since there is no load on the right half of the truss, the reactions at 5 and 10 are in the same straight line. Then $R_2$, the reaction at 10 is known in direction as shown. Now produce R to meet $R_2$, at w. The reaction at 1 must pass thru w, and R, is determined in direction. A force triangle may be constructed and their magnitudes determined.

Another method for determining the reactions is as follows: From the point y draw a line parallel to O B to meet load at joint 2, then one parallel to O C, etc., until the point x is found at the load line at joint 5. Then draw yx to close the funicular polygon. From O draw a ray parallel to xy, to meet line thru F, parallel to $R_2$. This locates the point G. Then join A to G. A G is then the resultant $R_1$ in magnitude and direction, and F G is $R_2$. Now at A draw a line parallel and equal to G A. This locates $R_1$. If $R_1$ is produced to meet $R_2$ it is seen that it will pass thru the point w, that was found by the first method.

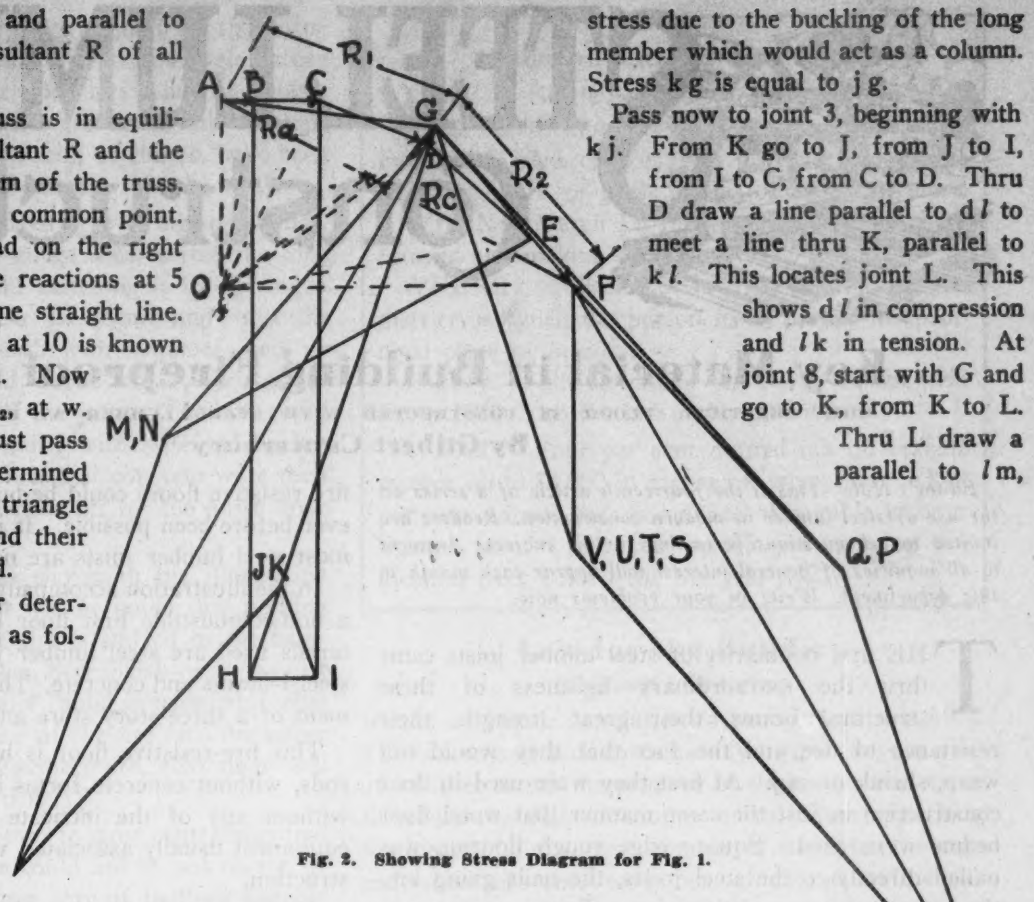



Fig. 2. Showing Stress Diagram for Fig. 1.

To determine the stresses we begin with joint 1, starting with $R_1$ or force g a. In Fig. 2 go from G to A, then from A to B. Thru B draw a line parallel to b h to meet a line thru G parallel to h g. The point of intersection is H. In tracing the polygon G A B H G we went from B to T. This shows B H to be in compression and H G in tension. Now take joint 2, beginning with h b. From H go to B, from B to C. Thru C draw a line parallel to c i to meet a line thru H parallel to i h. This determines point I. The polygon shows c i in compression and i h in compression. Now go to joint 6 and begin with g h. From G go to H, from H to I. Thru I draw a line parallel to i j to meet a line thru G parallel to j g. This locates J. This shows j i in compression and j g in tension.

Now go to joint 7, where there are but two unknowns, while at joint 3 there are three unknowns, and the solution is impossible as yet. Start at G and go to J. Thru J draw a parallel to j k to meet a line thru G parallel to k g. This locates K to coincide with J. That is, so far as the wind load is concerned there is no stress in j k. But there would undoubtedly be stress due to the buckling of the long member which would act as a column. Stress k g is equal to j g.

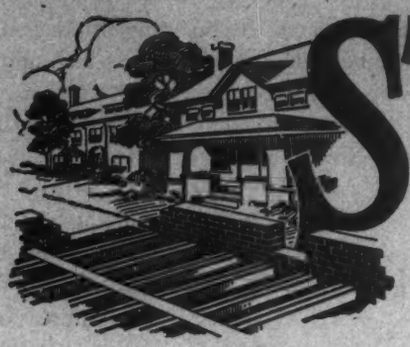
Pass now to joint 3, beginning with k j. From K go to J, from J to I, from I to C, from C to D. Thru D draw a line parallel to d *l* to meet a line thru K, parallel to k *l*. This locates joint L. This shows d *l* in compression and *l* k in tension. At joint 8, start with G and go to K, from K to L. Thru L draw a parallel to *l* m, to meet a line thru G, parallel to g m. This locates M. Since L M G K is a parallelogram, stress m g is equal to stress *l* k, etc.

Now take joint 9, beginning with g m. From G go to M; thru M draw a line parallel to m n to meet a line thru g parallel to n g. This locates N, and shows M and N to coincide. That is, stress m n is zero, so far as wind load is concerned. It is used to prevent buckling of the column.

Now consider joint 4, beginning with n m. From N go to M, from M to L, from L to D, from D to E. Thru E draw a parallel to e n to meet line M L at N. Here is where the accuracy of the drawing is tested. In this construction N E as drawn is not quite parallel to n e, on account of inaccuracy. However, I make no claim for any great degree of accuracy in my figure, rather I am suggesting the method and the reader may apply the same to his particular problem.

From joint 5 begin with force g n. From G go to N, from N to E, from E to F. Thru F draw a line parallel to f p, to meet a line thru G parallel to p g. This locates point P. The polygon shows p g in compression and f p in tension. There is no stress in p q, so that P and Q coincide. At joint 17 start with p f. From P go to F. Thru F draw a line parallel to f r to meet a line thru I parallel to q r. This locates Q.

*(Continued to page 118.)*



# STEEL LUMBER Construction

## Key Material in Building Fireproof Floors

HOW PRACTICAL FLOOR IS CONSTRUCTED WITH STEEL LUMBER AS BASIS OF JOB

**By Gilbert Canterbury**

*Editor's Note—This is the fourteenth article of a series on the use of steel lumber in modern construction. Readers are invited to ask questions pertaining to this subject. Answers to all inquiries of general interest will appear each month in this department. Write in your problems now.*

THE first popularity of steel lumber joists came thru the extraordinary lightness of these structural beams, their great strength, their resistance to fire and the fact that they would not warp, shrink or sag. At first they were used in floor construction in just the same manner that wood floor beams were used. Square edge rough flooring was nailed directly to the steel joists, the nails going into the seam at the tops of the joists. Tongue and groove floor finish was then nailed to the rough flooring.

Later, however, contractors and architects began to note that steel lumber joists were the "key material" of a combination of materials with which thoroly fire resistive floors could be built at less cost than had ever before been possible. It is in this latter field that most steel lumber joists are now used.

In the illustration accompanying this article is shown a non-combustible first floor in which the chief materials used are steel lumber joists, metal lath, rolled steel I-beams and concrete. The view is from the basement of a three-story store and apartment house.

This fire-resistive floor is built without reinforcing rods, without concrete forms of any kind and in fact without any of the intricate engineering and costly equipment usually associated with fireproof floor construction.

A row of brick piers have been run down the middle of the basement. Rolled steel I-beams spaced sixteen feet are run across these piers. When the contractor placed his order for these I-beams he said he was going to use steel lumber joists and an angle was riveted to

View From Basement of Store and Apartment Building. Steel Lumber Joists Supporting Thin Concrete Floor Slab.

the webs of the I-beams to serve as shelf for the joists. The structural steel company riveted this angle before delivery to the contractor and thus when the joists were set in place their tops were level with the tops of the I-beams. The joists could, of course, have been run across the tops of the I-beams.

The steel joists were bridged by weaving steel bands, one inch wide and twenty-guage thick across the tops and under the bottom, and fastening it by driving a common roofing nail thru the band and into the joist seam. Then metal lath with a quarter-inch or three-eighths-inch rib and about twenty-four-guage was placed over the tops of the joists. The lath could be attached either with nails, with patented spring clips or by wiring. Two inches of concrete were then spread over the lath and leveled off for the finish floor surface.

Looking at this floor as shown in the illustration from the basement side, it will be noted that nothing burnable is in sight. If a fire is started in the basement by the heating furnace, by rubbish or by any of the other fire hazards usually found in basements, that floor will resist the advance of the fire into the upper floors of the building. Furthermore, that floor will not decay, warp, sag or deflect.

At first thought it will occur to most contractors that the two inches of concrete could not be put on top of the steel joists without some sort of built-up support for the mix while it was wet. But as a matter of fact the concrete is very well supported by the metal lath. It does not go thru the lath and the lath does not sag more than a trifle. In the illustration the steel joists were spaced nineteen inches and for this spacing any good twenty-four-guage ribbed lath will easily support the wet concrete. Furthermore, the concrete keys in the lath and thus the lath acts as a good reinforcement for the concrete.

Where a finished ceiling is desired, metal lath is attached to the bottoms of the joists. Viewed from the upper side, this floor shown in the illustration is a straight concrete floor. If a wood floor surface is desired, nailing screeds are embedded in the concrete.

### Income Tax in Nutshell

WHO? Single persons who had net income of $1,000 or more, or gross income of $5,000 or more. Married couples who had net income of $2,000 or more, or gross income of $5,000 or more.

WHEN? March 15, 1922, is final date for filing returns and making first payments.

WHERE? Collector of internal revenue for the district in which the person lives, or has his principal place of business.

HOW? Full directions on Form 1040A and Form 1040; also the law and regulations.

WHAT? Four per cent normal tax on taxable income up to $4,000 in excess of exemption. Eight per cent normal tax on balance of taxable income. Surtax, from 1 per cent to 65 per cent on net incomes over $5,000 for the year 1921.

### Law for the Builder

(*Continued from page 99.*)

statute of frauds in relation to promises of this kind. The outcome of such cases usually turn on the question of whether or not the promise by the owner was made to secure the debt of another or to obtain something for himself. In a great number of the cases the subcontractor has recovered, but, of course, at the expense of a lawsuit which could in many instances have been avoided if proper precautions had been taken when the promise was accepted.

To sum up, then, it may be said: That the safest course for the subcontractor in situations of this kind, if he proposes to rely upon the promise of the owner, is to have that promise in writing and signed. This will satisfy the statute of frauds and eliminate the possibilities of an after dispute on this point, which is always liable to arise where such promises are merely oral.

✣

ARE you preparing yourself for the big spring drive by studying the long winter nights? Don't be the "Man who stood still!"

**Row of Small But Attractive and Comfortable Homes in Rock Island, Ill. They Were Built During the War and Now Help to Relieve Much of the Suffering of Families Who Want to Escape High Rents.**

# Prevention of Dusting in Cement Floors

CHIEF REASONS FOR EXCESSIVE DUSTING OF CONCRETE FLOORS AND METHODS TO PREVENT DUSTING

A COMPLAINT often lodged against concrete floors is the fact that they dust and sand—that they are hard to keep clean. The more sweeping done, the more dusting.

This cement dust, being very fine and abrasive, sifts and filters into everything, and is especially destructive when it becomes lodged into moving parts of machinery. In time this dust may become serious in its consequences to the floor, resulting in such a weakening of the wearing surfaces as to cause crumbling, and the formation of holes and ruts, says a writer in Maintenance Engineer, published by the Truscon Laboratories.

### Varying Conditions

The baffling part of this process of sanding and disintegration is that all floors do not wear alike—that given conditions of equal and of the same kind of wear, there will be a big variation in the way two floors may stand up in comparison. Two floors, having been laid by the same contractor at practically the same time, using the same material, with all other conditions apparently being equal, may be of such divergent character that one floor, subjected to very hard wear, might give better service than another subjected to relatively light wear.

### Influence of Water

While cement requires relatively but a very small amount of water for its actual hydration, in practice a very large amount of water must be used in order to obtain its proper consistency for the processes of pouring, placing, tempering, etc. This quantity of water is variable, depending on the cement and aggregates and atmospheric conditions.

Where the skill and knowledge of the contractor's foreman comes in, however, is altho a large amount of water is necessary, an excess of water in a concrete floor is not desirable. Excess water makes the topping "sloppy," bringing the lighter particles, known as "laitance," to the surface. This "laitance" has very little binding or adhesive quality. It is one of the chief causes of the dusting of cement floors. Such a floor will dust even before it is worn; it may be set so soft that the surface can be scratched off with the toe of the shoe.

Contrariwise, if too much water is not good for concrete or cement—then too little water is just as bad, because in that event the material has not the required fluidity to amalgamate the numerous particles into a compact mass—causing a weak bond.

Photograph of a Cement Floor in a Shipping Room Where Proper Hardening Precautions Had Not Been Taken. Observe That Topping Has Been Completely Worn Off, Prominently Exposing Stone and Coarser Aggregate.

### Influence of Troweling

Again, the trowelling of cement is very important. The final trowelling should be done at just about the time of the initial set. This initial set may be any time from ¾ of an hour to 16 hours after the topping has been placed, depending entirely on cement and atmospheric conditions. A finish trowelled too soon will bring water and laitance to the surface, causing a dusty floor. If trowelled too late, it simply results in breaking down that crystalline structure which constitutes the initial set of the cement. If too much trowelling is done, we have again the appearance of laitance, due to water bringing only the lighter particles to the surface.

### Freezing

Freezing, of course, is bound to cause damage and result in a soft, scaling floor, if not a defective structure. Such a floor may be a decided menace.

### Influence of Cement and Aggregate

The function of the sand and stone in concrete is to give compressive strength and wearing surface—the cement acting as the binder for holding the particles of sand and stone together. Naturally, if there is a lack of cement or a poor grade of cement, such conditions will result in a soft, crumbling floor. Again, if the sand is too fine or loamy, one will obtain a surface that is unable to bear up under the shock and abrasion of traffic.

To recapitulate, we might list the probable reasons for soft, dusting cement floors, as follows:

Lack of cement.

Poor cement.

Poor sand (loamy—not sufficiently "sharp" or well graded).

Improper proportions cement and aggregate.

Too much water.

Drying too quickly (as in a steam-heated

building, or exposed to direct sun's rays. All concrete and cement surfaces should be kept moist while hardening. This is very important).

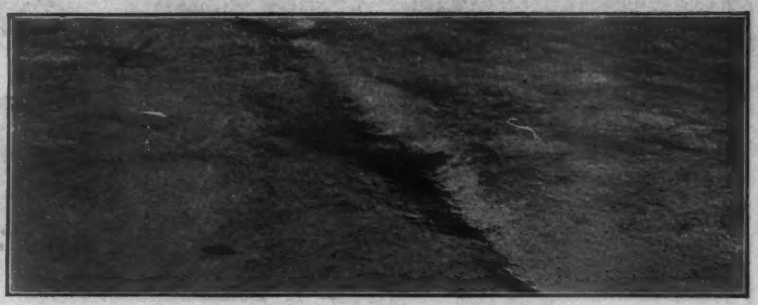
Trowelling too soon.

Trowelling too late.

Trowelling too long.

Freezing.

Using floor too soon (before surface has had time to harden and set thoroly, which process requires from a week to three weeks, depending on local conditions).



The Rut in This Floor Is at a Joint or "Seam" in the Concrete. Very Often When These Joints Are Not Well Bonded, a Line of Weakness or Soft Spot May Develop. Such a Line of Weakness, if Traversed Daily by Heavily-Laden, Metal-Wheeled Trucks, Will Wear Into Holes. When Trucks Begin to Bump Into Such Holes, Not Only Do the Rutted Sections Wear Faster, but the Entire Surrounding Surface as Well.

Any one, or any combination of these conditions may cause unusually soft, dusting floors.

### Hardening Methods

Having sketched briefly what might be considered the major reasons for the dusting and gradual breaking down of the surface of a cement floor, we will now take up in detail the various methods which have been successfully applied and are recommended for putting a cement floor in such shape as to reduce its dusting to a hardly perceptible minimum, at the same time enabling it to give real wear and service, even under the hardest traffic. Practice today recommends one of three methods for protecting cement floor surfaces as follows:

1. Hardening chemically.
2. Hardening mechanically.
3. Surface film treatments.

The first two of these methods perform the function of dust-proofing and crumble-proofing a cement floor thru actual intrinsic hardening of the surface. The third calls for the application of a protective coating or film over the floor, such as varnish, enamel or the like.

## METHOD NO. 1
### Hardening Chemically

Of the two available methods, chemical and mechanical, of actually hardening a cement floor, the chemical method is certainly the simplest and most convenient, as it is a surface treatment applied to seasoned and hardened concrete. This differentiates it from the mechanical method, which requires that the hardener be incorporated into the finish.

The chemical method consists of simply flushing and sweeping over the surface of a chemical in solution, the intention of which is to react with the constituents of the cement, forming compounds that are denser and more closely amalgamated in texture, than the normal cement floor surface. The chemical is applied in solution, as this insures the easiest medium for reaction at normal temperature, and in order to supply a material which will be readily absorbed by the cement.

### Acid-Proofing Concrete

Complaints are sometimes raised regarding the disintegration of cement floors, where such floors are subjected to the action of weak acids, as in canning and pickling establishments. These acids dissolve the free lime in the cement surface, causing rapid crumbling of the structure. Thru its chemical reaction, these preparations "fix" this free lime, rendering it insoluble and hence immune to the action of such acids.

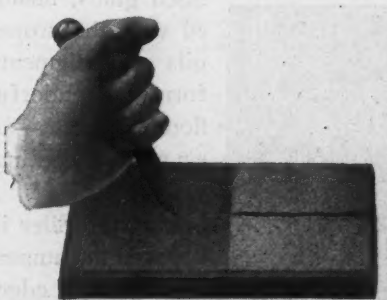
### Oil-Proofing (Vegetable Oils)

They are similarly beneficial when applied to floors subjected to splashings of weak sulphuric or hydrochloric acid liquids. In fact, any concrete or cement surface likely to be exposed to mild acid conditions such as those already mentioned, or to disintegration by vegetable oils (cottonseed, cocoanut oil, etc., which contain fatty acids), can be very decidedly benefited.

## METHOD NO. 2
### Hardening Mechanically

Contrasted to this method, which can be applied only after the floor has been laid, set and hardened for at least two or three weeks, the method of mechanically hardening usually calls for its work at the time of the final finishing of the floor.

As it is the hard grains of sand in the cement topping which give strength and wear-resistance to the finish—it can be reasoned that by incorporating a much harder and tougher material than sand into the cement finish, a much harder and more wear-resistant floor should result. This is the principle of mechanically hardening concrete floors. It consists of incorporating a floor hardener, a very hard and dense material, into the concrete topping by mixing with dry portland cement, dusting this over the cement finish and carefully trowelling to a hard, smooth surface.



Knife Blade Test. A Test of a Cement Surface by Drawing a Knife, Spike or Other Hard Iron Instrument Over Same, Bearing Quite Heavily. The Half of the Block at the Right Is a Normally Hardened Cement Surface, Whereas the Half at the Left Has Been Hardened Chemically. Note the Difference in Depth of Scratch Caused by the Knife.

For mechanical hardening, it must be stated that where floors are subjected to unusually heavy abrasive wear, such as the drag-

At the Left Illustrating Surface Film Treatment, at the Right Mechanically Hardening and in the Center Chemically Hardening.

ging of heavy cases or rolling of loaded trucks, as would be expected in warehouses, foundries, and manufacturing plants engaged in making of heavy articles, which must be shifted across the floor—that the mechanical hardening process is by far preferable.

### METHOD NO. 3
### Surface Film Treatment

This method is considered very practical, as applied to concrete floors of offices, hotels, apartment houses, showrooms and other such places where the floors are not subject to the hard, abrasive wear and abuse characteristic of floors in a foundry or warehouse.

(We wish to make this point clear, in order not to confuse between materials imparting real intrinsic hardness to concrete, such as Methods No. 1 and No. 2 previously described, and materials producing mere films.)

The advantages of efficient film treatments are many. They are, of course, decorative. They are also sanitary, because they "lay the dust," avoid staining and absorption of organic compounds. They are washable and their surfaces can be kept fresh and clean.

### Enamel Films Best

Nevertheless, it must be recognized that a film, in order to give a measure of satisfactory service on a cement floor, must be a coating of an unusual character. It must have the hardness of the hardest floor varnish.

This hardness is obtained thru the introduction of very tough fossilized gums, such as Kauri, into the material. It therefore becomes an enamel, not a paint.

A Sealed Cement Floor. A Floor That Looks Like This Is Almost an Infallible Sign That It Has Been Frozen.

Such gums, blended with the proper oils and pigments form a wonderful floor treatment—an enamel coating, which acts as a binder and filler in between the numerous sharp edges and irregularities, composing a cement floor (see serrated profile, page 112) producing a surface that is smooth, uniform, hard—a washable surface like tile.

### Alkali-Resisting

As has already been intimated, a concrete floor is decidedly alkaline. This is due to the presence of "free" or uncombined lime in the cement. This lime is very destructive to paint, varnish or enamel. In the presence of only a slight amount of moisture, lime combines with the acids in the oil of ordinary paint, forming soapy salts of the fatty acids, absolutely ruining the paint.

### On Staining Floors

Where the intention is to obtain a washable, non-staining cement floor at a saving of money, a special transparent floor coating is occasionally used. This material contains no pigment and finds particular adaptability in garages and restaurants because of its washable feature. It covers the floor with an impervious coating that is non-absorbent to staining liquids and oils.

In the application of any paint coating to a concrete floor, it is necessary to take moisture conditions into careful consideration. Any floor laid directly on the ground is apt to absorb moisture. The floor may "appear" to be perfectly dry, but the peeling of the paint coating may too late discover it to be damp.

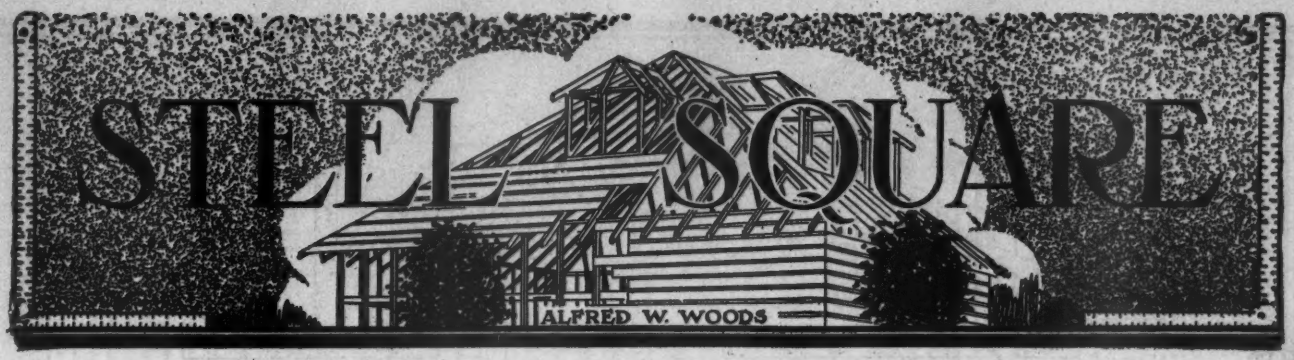
A test which is sometimes made to ascertain evidences of dampness in a cement floor is to lay a rubber mat on the surface. At the end of twenty-four hours, and sometimes much sooner, if the mat is removed that section of the floor just covered by the mat will be found to be darker in color, if any moisture is present. Such moisture, which would otherwise never be noticed, if imprisoned under a paint film with the active assistance of the lime in the cement would make short work of the paint.

Under no circumstances should any paint or varnish coating be applied over a wet concrete floor, or a floor which is known to be wet at any season of the year. Water on top of a good, hard paint does little harm, but water getting behind and underneath a paint film causes blisters and peeling. This is a fundamental rule which should always be borne in mind when using paint coatings. ✣

THE greatest building activity in this country next year will be in the industrial states, according to a forecast of the building outlook made by the Committee on Statistics and Standards of the Chamber of Commerce of the United States.

It is pointed out by the committee that there will be a good many business buildings next year, and a large number of them will be in the shape of alterations and enlargements.

According to the committee, California leads the other states with respect to probable construction, while good likelihoods of construction lie in the Central West and in the East.




# How to Use the Steel Square

MORE INFORMATION ON UNEVEN PITCHED ROOFS AND ABOUT BACKING HIP ROOFS

WHEN we began preparing the illustrations for our last article, it was with the intention of showing and saying all that we had to say on uneven pitched roofs, but before we got fairly started on our subject we found that it was stretching out beyond our first intention, so we just cut it in two and this is the other half. We could go on and show a lot more illustrations, but what is the use, since they all lead to the same thing and one is as good as another, as far as the results are concerned. When the principles involved are once mastered, the different applications of the steel square in solving the angles in roof framing become legion, and the master is monarch of all he surveys.

In Fig. 1 are shown three squares placed in such a way as to represent the run and rise of the common rafter and corresponding hip. Here the span is represented as being 20 feet 6 inches. By letting inches on the squares represent feet, the run of the common rafters will be at 10¼ inches, as shown on the tongues of the squares Nos. 1 and 2. Now suppose the rise is 9 feet, the length of the common rafter will be 13 feet 5⅛ inches. The heels of these two squares are resting at the juncture of the runs of the hip and therefore act as a pivotal point for the heel of the third square, whose blade and tongue represent the runs of the hip. In this case, it being a square cornered building, the angle formed by the third square with that of the tongues of the other squares, will be of like proportions, as will be seen by the plate lines intersecting like figures on both the blade and tongue of the third square. Therefore 14½ inches represents that the run of the hip is 14 feet 6 inches. As a further proof of this illustration, set a compass with 10¼ inches radius (the run of the common rafter), strike a semi-circle and it will catch the plate lines as shown. A 14½-inch radius catches the corners of the plate and this length transferred to the tongues of the two upper squares and a line from these figures to

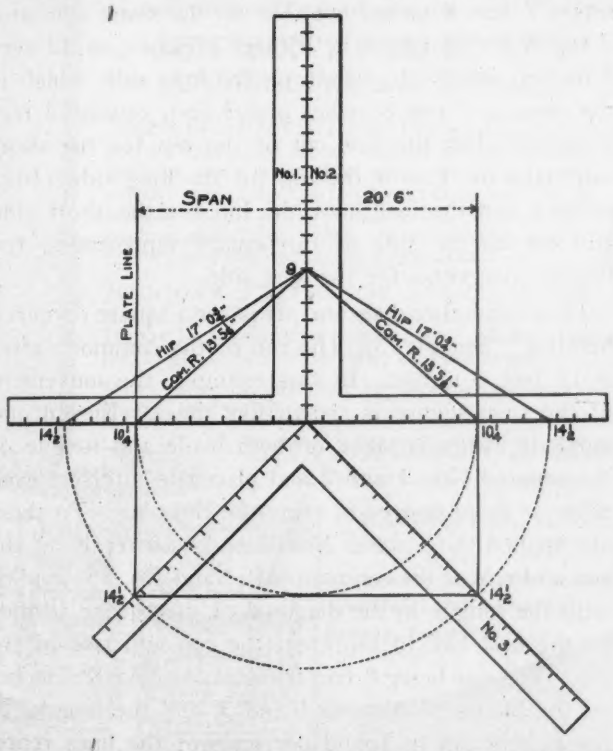



Fig. 1. Three Squares Placed so as to Represent Run and Rise of the Common Rafter and Corresponding Hip.

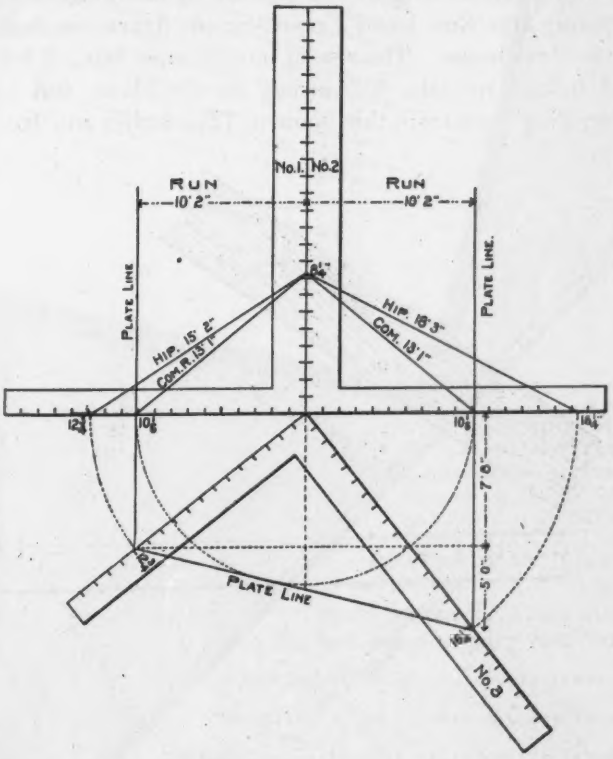



Fig. 2. Same Principle as Shown in Fig. 1. Applied to Building Out of Square.

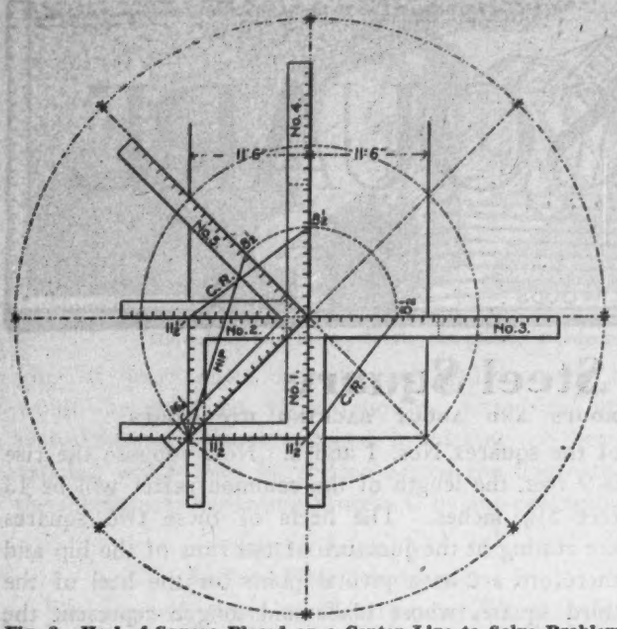



Fig. 3. Heel of Square Placed on a Center Line to Solve Problem Shown in Fig. 2.

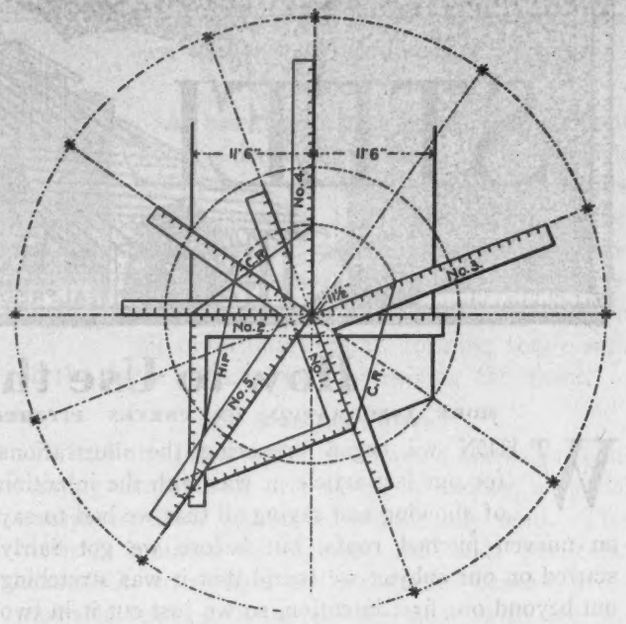



Fig. 4. Showing How Square Is Applied to Building That Is Out of Square.

9 on the blade will represent the hip and is found to be 17 feet ¾ inches.

In Fig. 2 is shown the same principle as given in the previous figure, applied to a building that is out of square. The simplest way to solve a problem of this kind, is to place the heel of square No. 3 on a center line and at a point that will allow the blade and tongue to intersect with the corners, as shown. In this example, the run of the common rafter being 10 feet 2 inches, the plate lines will intersect at 12¾ inches and 16¼ inches for the short and long side respectively. These lengths transferred to the tongues of the squares Nos. 1 and 2 represent the figures on those members to use. The rise in this example being 8 feet 3 inches, we take 8¼ inches on the blade, and by drawing lines from this point to 12¾ inches and 16¼ inches on the squares 1 and 2, will represent the length of the respective hips. The question now arises. How far from the corners of the plate is it to the seat of the common rafter? This is necessary to know, because these lengths and that of the common rafter will give the side cut of the jacks. The cut will be found on the side of the square that represents the length of the rafter. In the absence of a diagram, these lengths may be found as follows:

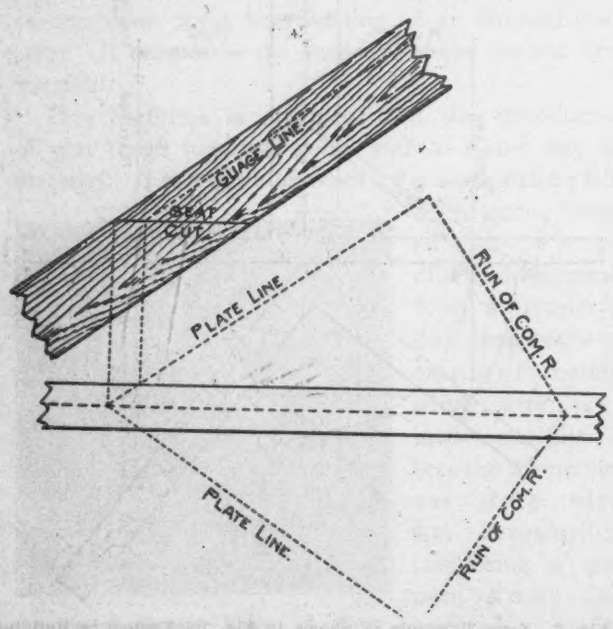



Fig. 5. Diagram Showing How to Find Backing Lines on the Hip for the Accurate Corner.

Since one side of the building is 5 feet longer than the other, take one-half of 5 feet, or 2 feet 6 inches, from 10 feet 2 inches (the run of the common rafter), leaves 7 feet 8 inches for that on the short side and 2 feet 6 inches added to 10 feet 2 inches, or 12 feet 8 inches, will be the length on the long side, which is the same as 7 feet 8 inches plus 5 feet, equals 12 feet 8 inches. For the side cut of the hip for the short side, take the run of the hip for the long side (16¼ inches) and the length of the hip for the short side and cut on the side of the square representing the length; vice versa for the long side.

Here is another diagram. It is for a square cornered building. See Fig. 3. The run of the common rafter is 11 feet 6 inches. In this example, the movement of the steel square is shown five times. Eleven and one-half inches is taken on both blade and tongue of the squares Nos. 1 and 2 and placed to intersect each other at these figures to represent the plan. To these are applied the squares Nos. 3 and 4 to represent the run and rise of the common rafter and No. 5 is applied with the tongue to the diagonal of the square formed by the first two to represent the run and rise of the hip. The rise being 8 feet 6 inches, we take 8½ inches on the blades of Nos. 3, 4 and 5, and the lengths of the rafters can be found per scale of the lines representing the rafters.

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The Rising Decorating Co., is one of the largest and most successful operators in Chicago. They have built up their business by employing the best mechanics—using the best materials, and giving their customers the finest kind of service. Mr. Rising used ***Johnson's PerfecTone Under-Coat*** for finishing the interior of the beautiful new Drake Hotel at Chicago—one of the finest in the country. ***Johnson's PerfecTone Under-Coat*** was used only after exhaustive experiments and in comparison with numerous brands.

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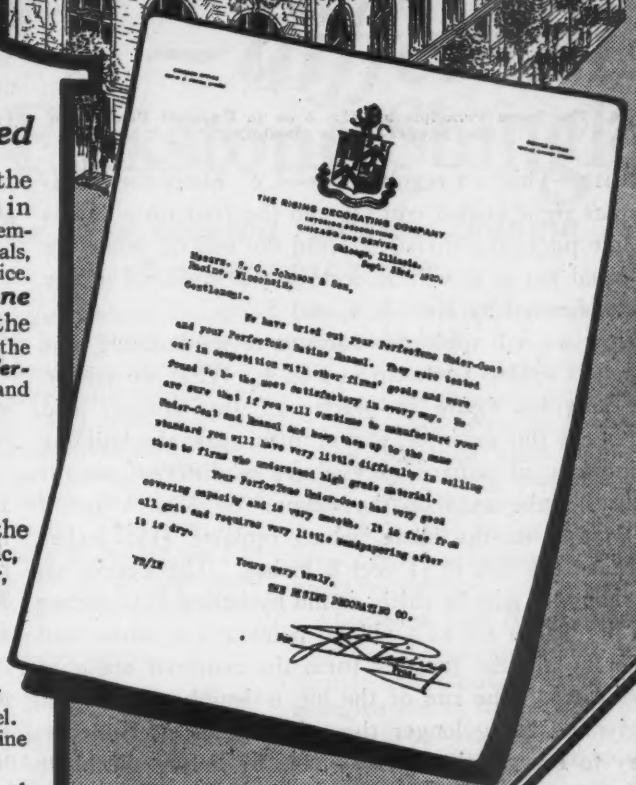

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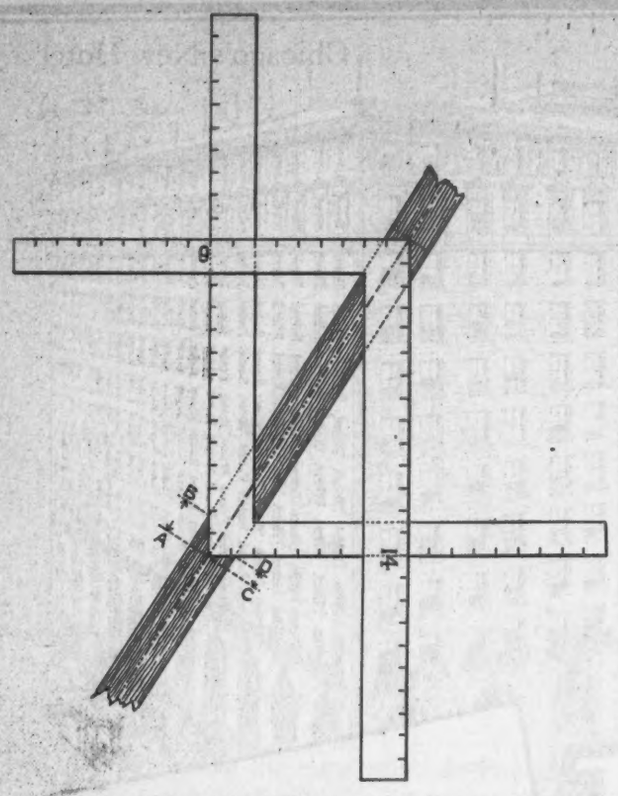


Fig. 6. The Same Principle as Fig. 5 as to Unequal Pitches for the Square-Corner Building.

NOTE—This is a regular plan—i. e., where the building has right angled corners and the roof on all sides of like pitch, the divisions from the central point are of equal parts, as will be seen by the divisions of the circle, formed by Nos. 3, 4, and 5.

Now we will apply this formula to the building that is out of square as shown in Fig. 4. What we said in the previous figure in placing of the squares also applies to this example, except in this case the building being out of square necessitates a different set of figures to be used on the tongues of Nos. 1 and 2 from that on the blade, which remains 11½ inches because the run is 11 feet 6 inches. The figures on the tongues may be easily found by letting 11½ inches on the blades act as a pivotal point at the center and open up till the tongues form the required angle of the plates. The run of the hip is lengthened accordingly and being longer than the tongue, it is necessary to reverse the square—i. e., by letting the blade represent the long run, as shown by No. 5, and the figures intersected on the tongue by the plate line will represent the short run, as is proved by the semicircle. This being an irregular plan, see the difference in the division of the large circle.

In connection with this example, it might be well to show a graphical method for the backing of the hip. It applies to any angle cornered building.

Suppose we wish to find the backing lines on the hip for the acute corner, as shown in the last figure. Lay off a diagram of the plan, as formed by the squares 1 and 2, as shown in Fig. 5. Diagonally across this lay off the full thickness of the hip and square across its back at points where the hip lines intersect the plate, and the distance apart of these lines, as at A and B, will be the amount to set off along the seat cut line from the edge of the rafter to obtain the gauge line. In this case, the gauge lines are of like depth on each side.

Fig. 6 shows the same principle applied to unequal pitches for a square cornered building. In this the run on one side is 9 feet and on the other it is 14 feet. The gauge lines will be found as above by setting off A B on one side and C D on the other. This applies to any pitch given the roof and is therefore a general rule.

✣

## Design of Safe Construction

(*Continued from page 109.*)

Now consider joint 10, beginning with $R_2$ or f g. From F go to G. Thru G draw a line parallel to g v to meet a line thru F, parallel to f v. This locates V. Consideration of the rest of the truss shows V M T and S to coincide, showing no stress in v u, u t, t s.

The reader should now allow wind to blow on the other side of the roof and draw the stress diagram. Both sets of stresses should be tabulated, and the maximum stress in any particular member used in the design. It is possible that reversal of stresses may be found in the two cases.

✣

## Income Tax Facts

IN making out his income tax return for 1921, the average taxpayer will find a considerable saving in comparison with the amount of tax paid on the same income of 1920.

The exemptions provided by the revenue act of 1921 are $1,000 for single persons (the term including widows, widowers, divorcees, and persons separated from husband and wife by mutual agreement), $2,500 for married persons whose net income was $5,000 or less, and $2,000 for married persons whose net income was $5,000 or more. Under the revenue act of 1918 the personal exemption allowed a married person was $2,000, regardless of the amount of net income. The personal exemption allowed a married person applies also to the head of a family, man or woman who supports in one household one or more relatives by blood, marriage, or adoption.

The exemptions for dependents—a person who receives his chief support from the taxpayer and who is under eighteen years of age or incapable of self-support because mentally or physically defective—is increased from $200 to $400.

The act requires that a return be filed by every single person whose net income for 1921 was $1,000 or more, every married person whose net income was $2,000 or more, and by every person—single or married—whose gross income was $5,000 or more.

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## *The slate-covered Asbestos Shingle at a popular price*

OTHER composition shingles are rag felt; Flexstone Asbestos Shingles are rock fabric, asbestos fibre, all-mineral and time-proof. They cost about the same as the ordinary kind. There is nothing in Flexstone Shingles to support decay, no vegetable or animal matter. They are fire-resistant and stiff-bodied, as you expect rock felt to be, and good to look at in their finish of red or green slate.

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**They look just like the others**

Slate surfacing is a great leveler of composition shingles. They all look alike on the surface. Flexstone Shingles do not depend on the slate coating for their roofing value or fire-safety; the body of the shingle takes care of that—asbestos fibres waterproofed with natural asphalt.

**Low in price**

Flexstone Shingles offer many of the merits of the well-known Johns-Manville rigid asbestos shingle at a price within a few cents of the ordinary rag felt shingle. There is no longer any reason why every house shouldn't have an asbestos roof.

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Flexstone is obtainable in three forms—individual shingles, strip shingles and in roll form as well.

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**This roofing stands the blow-torch test**

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# JOHNS-MANVILLE
# Asbestos Roofing

# Hollow Brick Wall in England

BRICK GARDEN WALLS ARE VERY COMMON AND MANY OF THEM ARE OF IDEAL CONSTRUCTION

**By William Carver, Architect**

UNLIKE the American building mechanic, who on the whole is now producing about as efficiently as before the war, the British workman is apparently turning out only about 75 per cent of his pre-war average. This opinion is based on a hasty tour of England a few weeks ago. The reason, as given by a contractor who served all thru the war, is that the years of army life which every able-bodied man was called upon to put in destroyed a great deal of personal initiative and the wholesale killing of his comrades acted in many cases to dull a man's ambition after he got out of the army. To find himself alive today is an unexpected fact to many a man and there are numbers of men who, prior to the war, were good steady workmen who are now content to get a few shillings ahead and then lay off until this is spent. Only time can cure this state of affairs.

In the meantime, however, England has succeeded in putting thru a comprehensive building program which is relieving the acute housing shortage which became apparent when hostilities ceased. The government, donating huge sums out of the public treasury, and operating thru the local authorities, has stimulated the building of many thousands of homes all over the country. From a narrow business viewpoint, which expects a rental showing a fair return upon the money invested, the government's project is a failure, inasmuch as all these homes were built when prices were at their maximum and must be let at very low rentals; but in a broader sense the new houses were a necessity and will pay at any price, the previous lack of housing manifesting itself in serious unrest.

But even at the heavy cost at which (for England) these houses were built, they may eventually prove a good business investment, for they are, without exception, built along traditional English lines of sound, permanent construction. Where stone is the prevailing local material, the walls are built of stone. In brick sections (and this covers almost the whole of England), the walls are of brick. Temporary construction has found no place in the British building program, and the groups of houses erected are well worthy to stand alongside their venerable neighbors, whose brick walls in many cases bear dates which bring back history book memories of almost forgotten kings and queens and quaint medieval personages. Dividing the cost of these houses by two or three hundred, the number of years which the majority of them will be habitable and serviceable, shows a yearly cost for investment which is so small as to be almost negligible and which would make the similar yearly cost of the typical American house of more perishable construction seem a riot of extravagance in comparison. Moreover, the masonry walls of the English houses will never require any outlay for upkeep.

The ideal wall is found in some parts of England. At Bridgewater, Somerset, for instance, is a terrace of about a dozen cottages of this construction, built sixty years ago. These cottages were visited on a rainy November afternoon. Approaching them, one was struck by the extremely attractive appearance of the brickwork, for the ideal wall, in common with all brickwork, acquires new beauty with the passing years. The occupants (some of whom had lived there many years) were unanimous in declaring that the cottages always had been comfortable and satisfactory in all weathers. Never, they declared, had any sign of dampness or moisture made its appearance on the inside of the walls, which are one brick thick, plastered directly upon the brick. Several ideal garden walls were also noted, one of which is illustrated here. It will be noted that this is laid in Ideal garden wall

Bricklayer's Scaffold in England. They Believe in Lumber Conservation Over There as You Can Readily See in Picture.

This Picture, Which Shows How They Fasten Uprights and Cross-Poles with Rope. Nails Would Soon Wear Out the Poles and They Use the Same Scaffolds on More Than One Job.

# It's Going Big!

"ANY time anybody shows me how to make three brick houses grow where only one grew before, I'll grab it.

"What if the Ideal wall does cut down the number of brick used on each job and makes the job run $300 to $400 less on material and labor?

"That's to my advantage. It means a lot more of brickwork. Why? Because it lets me prove to people that a brick home costs less than any other kind.

"I'm able to offer good, old reliable brick construction — which everyone likes and which doesn't require any painting and repairs and means less insurance—for the price of frame construction.

"It's going big. Take a tip from me and any of you fellows who are not on to this kind of construction should get the facts and get in on the ground floor."

The adjacent column describes this kind of Ideal wall construction about which Pat is so enthusiastic.

*Simple and easy to lay up the Ideal Wall*

**The Common Brick Industry *of* America**

*1306 SCHOFIELD BUILDING*

Cleveland, Ohio

**The Ideal Brick Hollow Wall**

### What the Ideal Wall Means to Builders

It's a fact, you can now produce brickwork — real-honest-to-goodness brick construction at a lower cost than less enduring and less attractive construction.

And it's going to mean lots more work because everybody likes brickwork and when they find out they can get it for the price of frame, there's going to be lots more of this work done.

The Ideal Wall saves one-third in cost of brickwork and makes brickwork the lowest in cost of any construction.

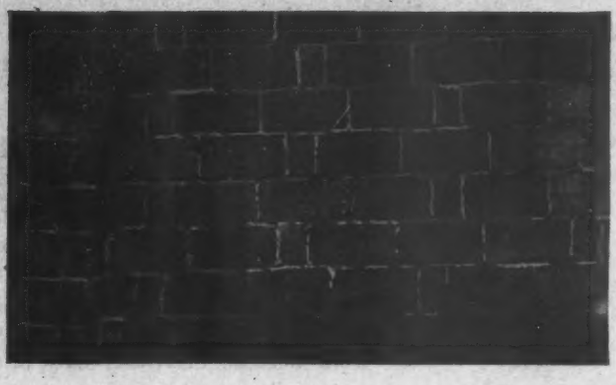
The brick—any standard brick—are laid on edge, as shown in the illustration, thus producing a wall which combines the advantages of the solid brick and hollow type at the lowest cost. Any mason can lay it.

In addition to the 8-inch wall shown, 12-inch and 16-inch thicknesses are obtained by different combinations—all simple and easily handled.

### Be Sure to Secure This Important Information

Here's a book that describes this construction. It's called "Brick, How to Build and Estimate." New, revised third edition. Thousands of builders are using this valuable manual. It's full of data, tests, tables about brickwork. 25 cents postpaid.

Another book that's a wonderful aid to contractors in interesting people in brickwork is "Brick for the Average Man's Home"—72 pages. The variety of design and drawings in the 35 homes illustrated are very unusual. *For all these designs complete working drawings are available at small cost.* You'll find this a decidedly valuable book. $1.00 postpaid. Send $1.25 to the Common Brick Manufacturers Association, 1306 Schofield Building, Cleveland, and receive both books. The nominal price asked is to cover printing and distribution costs only. You'll never regret securing these valuable publications.



**Ideal Brick Wall Surrounding One of the Old English Estates. This Type of Wall Is Not New, but It Is Just Beginning to Be Appreciated by American Builders.**

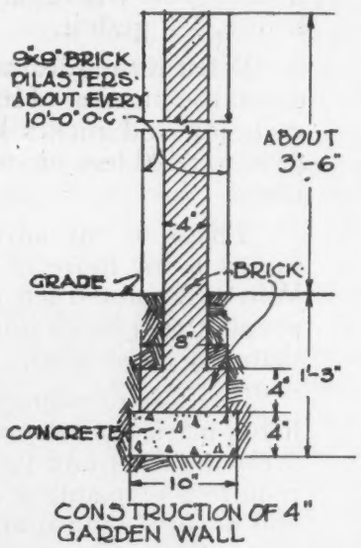
bond, three stretchers being followed by a header, the header on the next course centering over the space between the headers below. This particular wall was standing upon sloping ground and the courses followed this natural slope instead of being laid horizontal and the wall stepped off at the top, the usual practice here. The wall is about seven feet high and eight inches thick, with buttresses about every twelve feet. The buttresses, by the way, were perpendicular.

Even small cottages in England customarily have their gardens completely enclosed with brick walls. In the front gardens, too, there is usually a brick wall between adjoining property and most generally an iron rail with a gate toward the street. Many such garden walls are built one brick thick, but it is also common practice to build them of 4-inch brickwork, in the latter case the walls being 3 feet 6 inches in height with 9 by 9-inch pilasters about every 10 feet centers. The foundation is constructed according to the sketch, and it will be noted that frost is not a factor much reckoned with in England.

**With a Fireplace in Every Room, It Is a Problem to Keep the Chimney Stacks Down to a Reasonable Number. Stacks Several Feet Apart Are Brought Together Below the Roof Level.**

The writer examined many such walls, some of which had been standing upwards of fifty years. They form splendid protection for vegetation from sharp cold winds, and the walls upon which the sun shines provide a splendid surface on which to train vines. Nails are easily driven between the brick joints for this purpose, and the driving of such nails does not seem to injure the walls. The joints in older walls are sometimes full of nails. The writer had occasion to drive some nails into an old four-inch garden wall and was interested to note that the old wall rang as clear as a bell, the lime mortar with which it was built having become so hard as to practically make the whole wall monolithic.

Not only are exterior walls in English houses built of masonry, but interior partitions also are almost invariably constructed of brick, both on the first and second floors, such partitions being four inches thick. This construction is made possible because of the fact that owing to the universal system of heating with open fireplaces the first floor is as much cut up as the second by hallways and partitions, so that the second floor partitions can be located over those of the first floor. The fact that there is no basement further simplifies this feature. Four-inch brick partitions are in universal use in England for bearing and non-bearing partitions and for two and even more stories where each story height does not exceed fifteen feet. The interior plastering is placed directly on the brick.




**Cross-Section of Garden Wall of Brick.**

To save shipping weight, many English brick are made with perforations extending thru the brick in the direction of its least dimension. Some brick contain as many as twenty holes.

Some of the cottages which were being built in various places along the South coast were built with cavity walls, consisting of two four-inch walls with a two-inch cavity, tied together with galvanized iron ties. Plastered directly on the brick, with no furring whatever, this construction is found entirely suitable for the most exposed localities.

Exterior and interior scaffolding is invariably used in England when constructing exterior walls, the brick being laid from both sides simultaneously, two men working as partners, one on each side of the wall. It will be noted from the photographs that the scaffold supports consist of round poles, which are tied together with ropes and are used on any number of jobs. There is quite a knack in building a scaffold in this manner so that the poles will be securely and yet snugly tied together. Note on the large scale photograph the newly applied coat of stucco on the brick backing.

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Of course you use many other things beside roofing. But there is nothing more important than roofing from the standpoint of dependability and quality.

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Barrett Everlastic Roofings are *honest roofings* from every standpoint. They're honest in quality, honest in prices, easy to lay. They build good-will, and safeguard your reputation.

Beside the popular, plain surfaced Everlastic "Rubber" Roofing, there are three other styles of Everlastic—two forms of shingles and a roll roofing, all with weather-resisting mineral surface in artistic, natural shades of red or green.

***Everlastic Multi-Shingles***
*Four shingles in one.* Tough, elastic, durable. Made of high grade waterproofing materials and surfaced with mineral, red or green. When laid they look exactly like individual shingles. Fire-resisting. Need no painting.

***Everlastic Single Shingles***
Same material and art-finish (red or green) as the Multi-Shingles, but made in single shingles; size 8x12¾ inches. A finished roof of Everlastic Single Shingles is far more beautiful than an ordinary shingle roof and costs less per year of service.

***Everlastic Mineral-Surfaced Roofing***
The most beautiful and enduring roll roofing made. Surfaced with mineral in artshades of red or green. Very durable; requires no painting. Combines real protection against fire with beauty. Nails and cement in each roll.

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This is one of our most popular roofings, a recognized standard among "rubber" roofings. It is tough, pliable, elastic, durable and very low in price. It is easy to lay; no skilled labor required. Nails and cement included in each roll.

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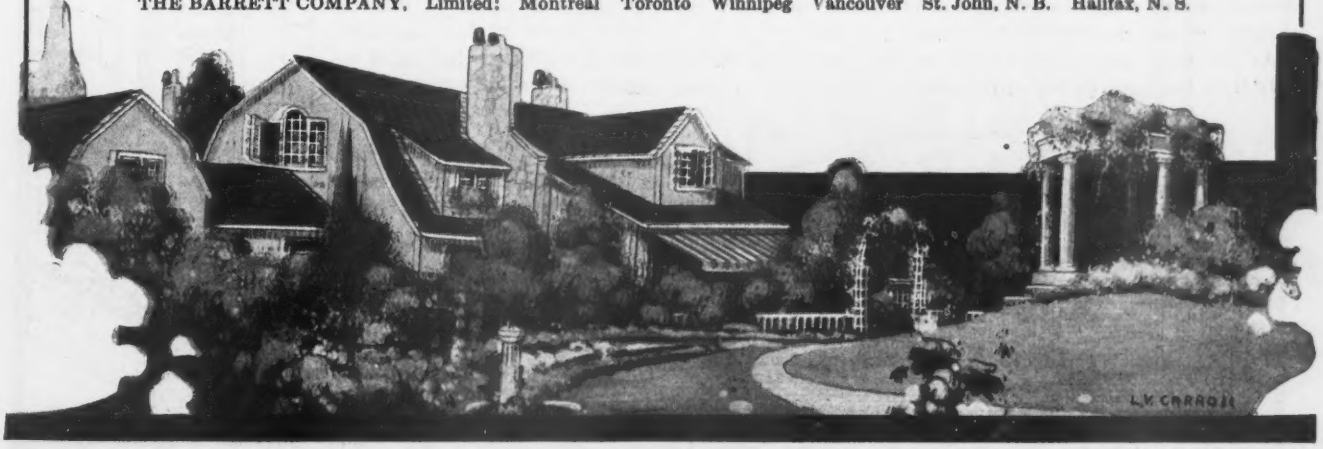


**Our Readers are Requested and Urged to Make Free Use of These Columns for the Discussion of all Questions of Interest to Carpenters and Builders**

## Believes Criticism of Blue Ribbon Home Unjust

To the Editor: Port Jefferson, N. Y.

In regard to Bro. Weber's criticism on the Blue Ribbon Homes, I think he is unjust.

A good variety and assortment is shown each month in the AMERICAN BUILDER, and if our own "ideal" is not pictured this month it will probably be in the next issue.

I am building a Blue Ribbon Home for myself. When completed I will send you photo of it.

JOHN E. MURPHY.

✣

## Needs a Roof to Carry 14 Feet of Snow

To the Editor: Hood River, Ore.

While reading your answers to knotty questions in the AMERICAN BUILDER, the thought came to me that you might be able to be of some assistance in a problem we have in hand.

The writer is one of the members of a club which is to erect a clubhouse on the shores of Lost Lake, situated at the base of Mount Hood. This clubhouse will be a simple, rough building to be used for outing purposes merely and would want to be built as cheaply as possible for strength and durability. No attempt will be made to beautify it in any way. It is to be 16 by 32 in size.

The shores of Lost Lake frequently get a snowfall of 14 feet during a winter and the proposition is to build a roof to carry this load and at the same time have it reasonable in cost. Any suggestions will be appreciated.

P. S.—All material for the above job will have to be hauled by truck from Hood River, a distance of 25 miles.

EMRY LUMBER AND FUEL CO.

✣

## Suggestion for Bro. Mangan

To the Editor: Elberton, Ga.

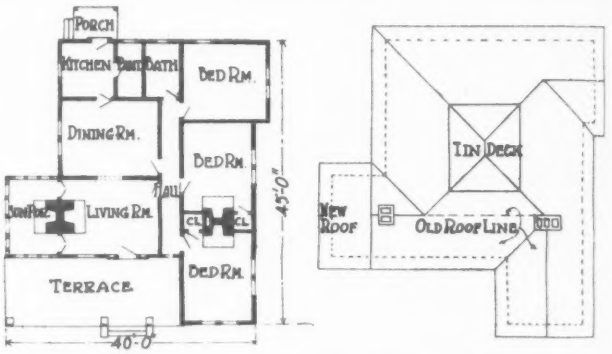
I saw J. J. Mangan's article in the October issue of the AMERICAN BUILDER, page 101, and had intended to send these sketches in last month, but have been too busy.

As you will note, I have increased the size of his house very little but have increased the number of necessary rooms.

Design Suggested by Bro. Price for Bro. Mangan, Who Wants to Remodel His House.

These changes will not cost an excessive amount as the main change will be in extending the roof up so as to cover rear addition to plan.

Siding can be used very nicely in this type of Colonial cottage. Green roof stain will add greatly to the appearance




Floor Plans of House Shown. The Number of Rooms Have Been Increased.

and a fresh coat of white paint. Use a Dutch Colonial design of blinds. Select one with some figure cut in the top center, as a half moon, goose or small animal. Round dormers on the roof will also add to the design. Remove old front porch and put down cement or tile terrace. Colonial entrance with hood with brackets is appropriate.

I merely offer this as a suggestion.

HUNTER J. PRICE, Designer.

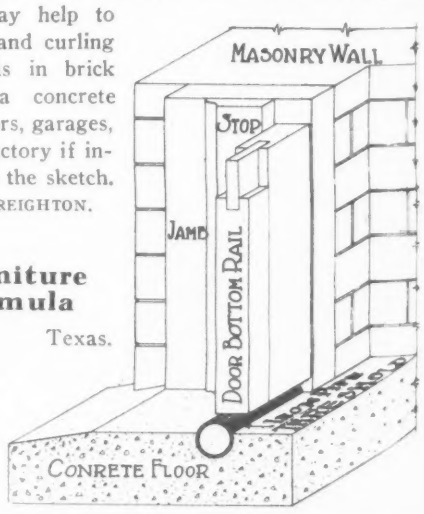
✣

## Suggestion For Thresholds

To the Editor: Fort Morgan, Colo.

I enclose sketch of door threshold I have used for some time, hoping it may help to solve the swelling and curling of wood thresholds in brick buildings. With a concrete sill or basement doors, garages, etc., it works satisfactory if installed according to the sketch.

DAVID CREIGHTON.




Unique Threshold Suggested by Bro. Creighton.

✣

## Wants Furniture Polish Formula

San Antonio, Texas.

To the Editor:

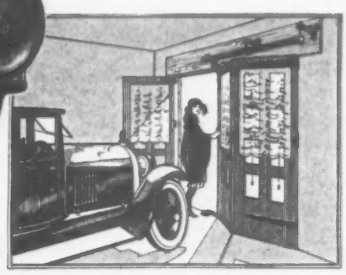
Would you please be so kind as to give me a formula for making a good spirit furniture polish?

P. M. LONGORIA.

# HANGER HARDWARE

## for EVERY *Special* REQUIREMENT

there can be found in the Allith-Prouty lines some suitable adaptation. The builder who requires and demands excellence of material and workmanship, ingenious adaptability of design and extreme ease of installation and operation, finds in the A-P Trade Mark his guarantee of satisfaction.

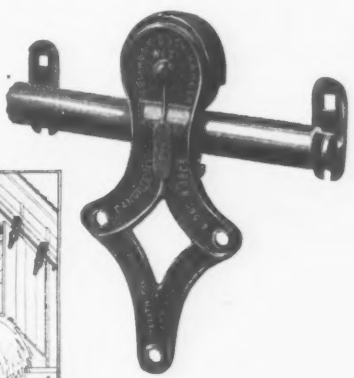


### Folding, Sliding Garage Doors

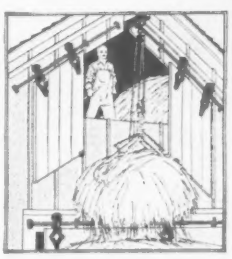
**"1080"** sets will hang 3, 4, 5 and 6 doors. Installations permit use of part or all of opening at once. Permit no sagging or binding and require only 12" headroom. Hangers are trolley-swivel type with vertical side rollers. Swivels operate on ball bearings, wheels on rollers. Both hangers and brackets are made of A-P malleable iron and can be locked to any adjustment. Used with No. 60X high carbon steel track which is designed with rounding wheel troughs.

### "Reliable" Round Track and No. 2 Hangers

for parallel sliding doors assure a job that costs less to hang—that operates easiest year in and year out.



Hangers are one-piece malleable, heavily reinforced; double wheel type; upper wheel has machined tread, hardened steel axle. Roller bearings. Lower wheel absolutely prevents jamming or derailing.



No. 2. Round Track, heavy, high carbon steel; tube type, slotted for well reinforced malleable brackets. (Reliable Round Track and Hangers are an original basic Allith-Prouty design.)

Catalog No. 91 describing this and other garage door hardware will be sent by return mail.

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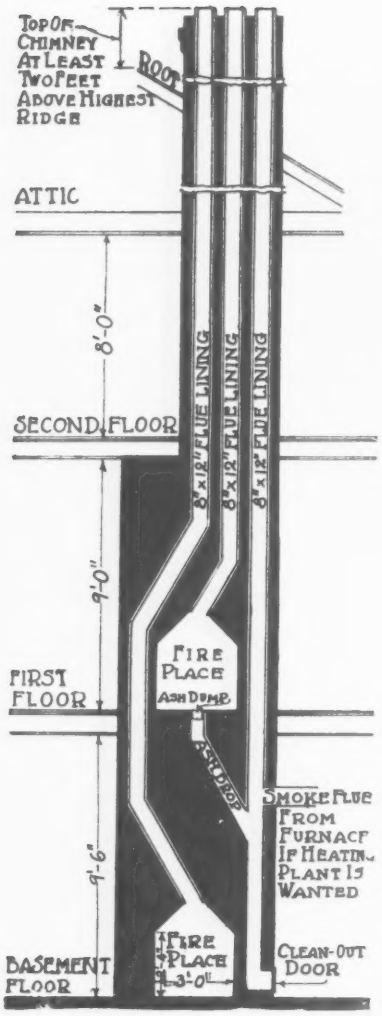



**Sketch Showing Two Fireplaces in One Chimney. Can This Be Done? Asks Bro. Waugh.**

## How to Build Two Fireplaces in One Chimney

Bluffton, Ind.

To the Editor:

I would like some information as to the proper construction of two fireplaces on one chimney. Can this be done with satisfactory results? I want both fireplaces to burn either coal or wood and be of real use, one in the basement and one on the first floor. I am enclosing a rough sketch of the dimensions.

F. C. WAUGH.

✣

## Thinks Our Explanation Satisfactory

Ashley, Md.

To the Editor:

I have read the letters in the correspondence department criticising the editor for not putting the estimated cost on house shown in the AMERICAN BUILDER and agree with the editor as to the variation in prices in different parts of country. But I would suggest that you print a bill of material of the house and then it would be easy to estimate the exact cost in each locality.

HERBERT WALKER.

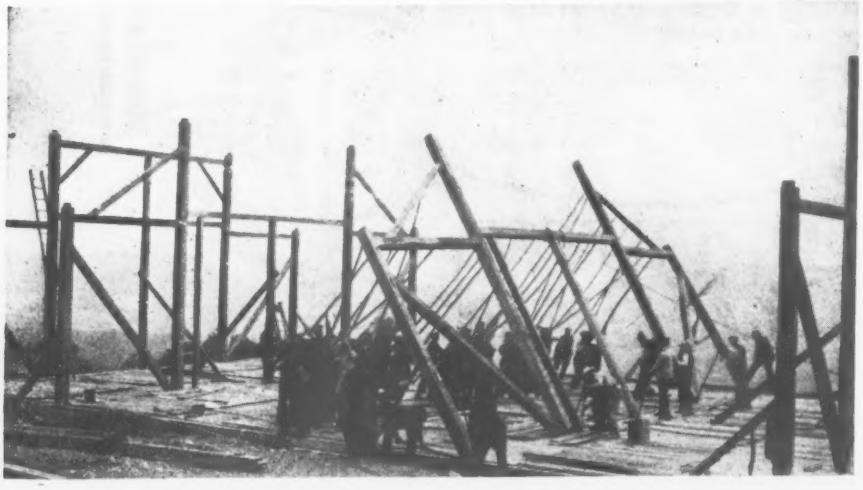
✣

## How They Frame Barns in Pennsylvania

To the Editor: Fairfield, Pa.

I am sending you two photos of barn framing scenes showing how we do this work in Adams County Pa. Fig. 1 shows the barn under construction at the State Sanitarium at Sabillasville, and Fig. 2 shows a barn built in Fairfield, Adams County, Pa. The construction work in both cases was carried out by myself and son.

A. A. TRESLER.



**"All Together, Let's Go." Barn Framing Scene in Adams County, Pennsylvania.**

**Roof Rafters On, Ready for Final Work. Another Pennsylvania Barn.**

✣

## Repairing Concrete Dance Hall

To the Editor: Ashton, Iowa.

Here is a problem on which I would like a little information.

The local Knights of Columbus have formed a club and rented a basement, size 22 by 60 feet, for their clubrooms. We are contemplating putting a floor for dancing purposes.

The present floor will not answer the purpose, as the concrete is of a light mixture and has a rough surface and has several cracks the length and breadth of the floor. Could a new coat of concrete, possibly ½ inch or 1 inch thick be laid over the old floor so as to make a perfect bond?

All information in regard to strength of material, thickness and method of bonding, method of finishing and surfacing in order to make a good dance floor will be greatly appreciated.

Kindly state if this method, if practical, is better and cheaper than a wood floor of Y. P. edge grain boards 2½ laid on 2 by 2 joist laid over the old concrete floor.

FRANK G. WELLENDORF.

*Answer*—The AMERICAN BUILDER has referred to us your letter requesting information on the construction of dance floors.

In repairing your present floor it is necessary to ascertain the cause of the floor cracking. If due to settlement and the possibility of further settling is removed the floor can readily be put in good condition by applying a new top course 1 inch thick composed of a mortar of one part Portland cement to two parts of sand. The cracks should be thoroly raked out and the floor cleaned free from all dust. In fact, it would be desirable that the present surface be roughened by means of a cold chisel or stone cutter's hammer. The bond between the old and the new concrete will depend entirely upon the old concrete being free from all dust, dirt or grease. After the floor has been sufficiently roughened it should be made wet and the new finishing coat applied. The mortar top should be mixed to a stiff consistency, struck off to the proper level and floated with a wooden float and then lightly steel troweled. The floor after finishing should be kept from drying out too rapidly in case the work is done in heated rooms. It can be either sprinkled occasionally with a very light stream of

# BIRD'S NEPONSET BLACK BUILDING PAPER

*Residence of Walter H. Merritt*
*Tenafly, N. J.*
*Architects—R. C. Hunter & Bro.*
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water or covered with wet sand. This is further explained in the suggested specifications for concrete floors which is being sent to you under separate cover.

After the floor has become dried out, it can be treated with paraffin, wax dissolved in terpentine, followed by a coating of powdered wax worked into the floor in the same manner as a wooden floor is waxed and polished. Another method is to coat the surface with liquid soap which is worked up into a lather and worked into the floor by means of a scrubbing brush, after which an occasional application of powdered soap on the floor from time to time will serve to keep the surface in good shape. It might be that several applications of liquid soap will be necessary before the surface is filled sufficiently to provide a smooth surface which would be satisfactory for dancing.

The question as to whether it is cheaper to build a wooden floor or refinish the old concrete one is difficult to answer without knowing the cost of labor and material in your locality. However, it is our opinion that the concrete floor finished as suggested would cost but little more than the wooden floor and would be more satisfactory, due to smoothness and resistance to wear. We trust this will give you the desired information.

J. E. Freeman.
Manager, Structural Bureau Portland Cement Association, Chicago, Ill.

✣

## Designs and Builds Church

To the Editor: Auburntown, Tenn.

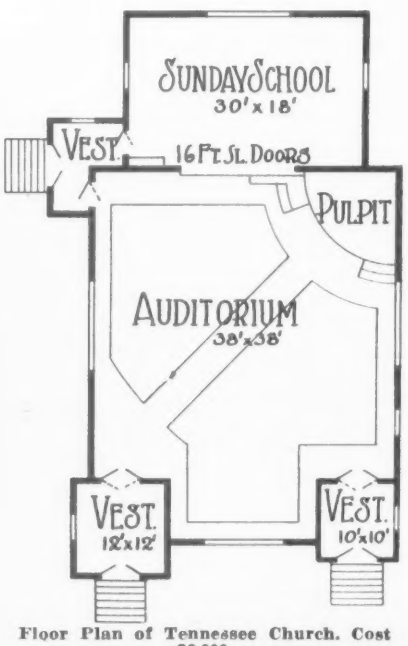
I am sending a picture with a floor plan of the new Christian Church at Auburntown, Tenn. Auburntown is only a little village and is twenty miles from any railroad, which makes building some problem. Despite these disadvantages, I designed and built this church complete, including the seats, for $6,000.

As we are too far from any market to build with brick, and good framing timber is still plentiful in this country, we build mostly with wood. This church is a frame building with concrete foundation, 2 by 6 studs, storm sheathed with 1 by 8 rough lumber, and weatherboarded with poplar siding, rough ceiled and papered.

The seats are of the circular pattern and furnished by a Chicago concern.

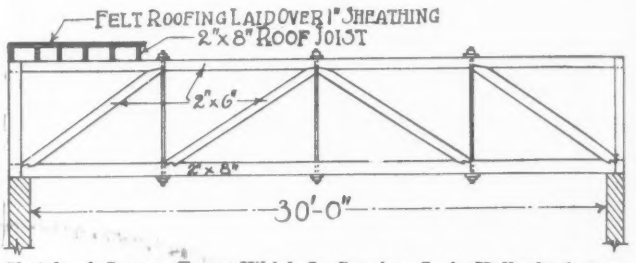
C. M. Cooper,
Building Contractor.

View of Church Built 20 Miles from Railroad by C. M. Cooper.




Floor Plan of Tennessee Church. Cost $6,000

✣




Sketch of Garage Truss Which Is Causing J. A. Hollenbeck Some Worry. Some of the Readers Can Help Him on This.

## Wants Details of Garage Roof Truss

To the Editor: Orlando, Fla.

As a constant reader of your valuable publication, I am sending a sketch of truss which I wish to submit to your correspondence department. I have only 2 by 8's and 2 by 6's to use. The 2 by 8's are 30 feet long and are good yellow pine; trusses to be 12 feet apart.

This is to be used in a garage. Send me detail of the strongest way to build it and keep it as low as possible so as to make a safe roof. J. A. Hollenbeck.

✣

## Building a Home in Spite of Obstacles

To the Editor: Kane, Wyo.

Am enclosing photo of the house I recently built myself. The blocks look rather "dingy," as they had been piled up here for several years right on the ground.

The upper joists run over the wall to form the 20-inch projection and the rafters rest on the joists. I didn't like to put a return on the gables for the cornice on account of the sparrows using it for nests, so I enlarged the gable facia at the lower end, and it doesn't look bad. I made it a little larger than the lower cornice and let it stick over about 1½ inches. The plates that carry the upper rafters project out over the wall and carry the gable facia. They are boxed up with two boards, and don't show much. I would have used brackets, but couldn't fasten them to the blocks very well.

The chimney at the other end of the house is just barely visible over the roof of the dormer. I didn't have enough corner blocks, so sawed the ends off the common blocks. That makes them look so white alongside of the others. The regular corner blocks are 8 inches by 8 inches by 2 feet.

The regular cor-

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**It Took Time and Perseverance to Build This House of Home-Grown Gypsum Block but J. W. Conrad Kept Right After It and Should Be Proud of His Work.**

ner blocks have a return on one end, and are 1 foot by 2 feet by 8 inches. Later on I intend to build an enclosed porch. It is to extend from the double window to the end, and be divided off between the two doors. One end will be used for a sleeping porch. I am thinking of making it 10 feet wide.

In this country we don't put cellars under the house because of irrigation water flooding the cellars at times, so I did not plan to build any. But, after I had the foundation finished, my wife wanted me to dig a little hole under the pantry and put in a trap door so she could store fruit jars down there. After I had it dug the earth began to cave in and I had to wall it. I dug it large enough to give us a cellar 8 by 10 feet.

The second floor is fully as high as the lower floor, 8 feet 2 inches. The ceiling in the hall is as high as the ceiling in the main part, so I had to start the dormer roof up high, about 2 feet 6 inches from the very peak of the upper rafters.

J. W. CONRAD.

Editor's note—Mr. Conrad explained how he obtained gypsum blocks in the December number of the AMERICAN BUILDER. He is to be congratulated upon his perseverance in spite of many disheartening obstacles. Other builders should find inspiration in the man's stick-to-it-tiveness under adverse conditions.

✣

## Design and Plans of Historic Church

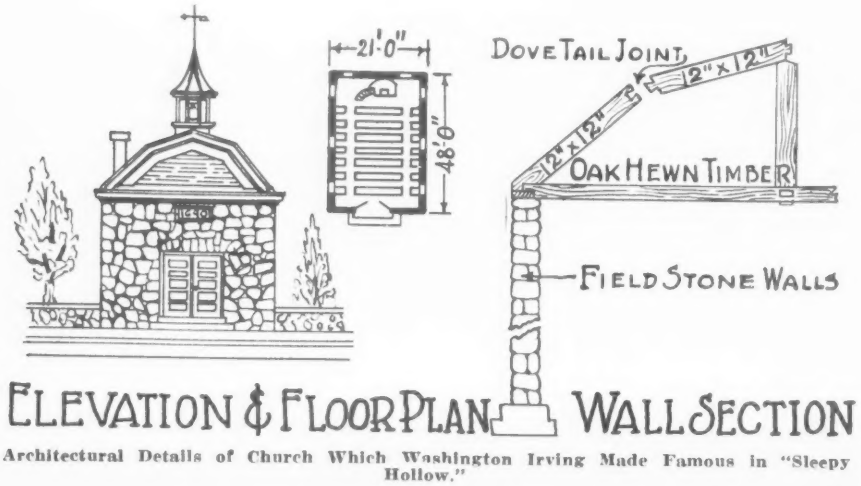
To the Editor: North Tarrytown, N. Y.

Enclosed you will find a little sketch and framing plan of church that was built 1690. This church is the one Washington Irving wrote about in the Legend of Sleepy Hollow. The particular or most interesting thing to me is the framing of rafters. This is hewn timber, 12 by 12 oak, and the joints fit together like a glove at this late date.

We have services in this church thru summer months.

The walls are field stone, laid in mud. The interior is natural wood finish with sounding bell over desk.

P. MINNERLY,
Architect.




**Architectural Details of Church Which Washington Irving Made Famous in "Sleepy Hollow."**

✣

## Information on Rafter Problems

To the Editor: Centralia, Ill.

Referring to the article of F. M. Williams in the September issue of framing a roof, I will give my version on the subject, which is so widely discussed.

F. M. W. says 12 on the blade and the rise on the tongue of the square give the lengths and cuts of the common rafter, and 17 on the blade, and the rise on the tongue give the length and cut of the hip, and incidentally the valley, as it is the same thing inverted, and then he is out of gas.

He doesn't tell us what figures to use to cut the bevel at the top of the hip, as there is undoubtedly a bevel cut unless the hip butts against an opposite.

Mr. Williams no doubt is in the same fix that a great many of us have been and are. He has not had this problem explained to him in such a way as to enable him to grasp and remember *the reason why.*

I will try to tell you as briefly as possible in a common sense way, avoiding all technicalities and hair-splitting details. The reason for 17 being the run of the hip is that 17 is the diagonal distance from 12 to 12. Measure this on your square and see if the hip or valley runs the diagonal of 12 and 12 inches to every foot run of the common rafter, and as your hip does not supposedly extend above the roof, it consequently has the same rise per foot run of the common rafter.

For bevel cuts the following rule holds good for *any* pitch, assuming, of course, that it is an even pitch, or the rise the same all over the house. Uneven pitches is a subject by itself.

To find the bevel cut of both hip and valley, and the jack and cripple rafters. (A cripple is a rafter without a seat cut, or one that does not reach the plate, as one from the valley to the ridge, or between valley and hip.) Measure on your square the distance from rise to run, this distance, and the run of the rafter will give you the bevel cut for any rafter, with the only difference, that on the hip and valley you cut on the short side, and for jacks and cripples you cut on long side.

For instance, if you had a half pitch, the bevel cut for your hip or valley would be: measure from 12, your rise, to 17, your run; distance, 20¾.

Take 17 on tongue, 20¾ on blade, cut on 17.

With jacks or cripple proceed the same way to find the length, only reverse the process, measure from 12, your rise, to 12, your run; distance, 17 (nearly). Take 12, your run on tongue, 17 on blade, cut on 17 on the blade.

For one-third pitch: Distance from 8 your rise, to 17 your run, on hip, distance 18¾ on blade, cut on 17 or the tongue; for jacks or cripple, distance from 8 your rise, to 12, your run, 14⅜ on blade, cut on 14⅜ on blade.

AUG. C. SCHNAKE.

# Fireproof, Waterproof, Attractive, Everlasting

Constructed of two of the most indestructible materials—long-fibre asbestos and Portland cement—Ambler Asbestos Building Lumber and Ambler Linabestos Wallboard give the contractor just what he needs for all jobs where permanent, fireproof, waterproof, low-insurance construction of good finish is required.

Grows stronger with age. Can be worked easily with ordinary tools. No painting required unless it is desired to change the permanent, restful, original colors made right in the body of the material.

Ambler Linabestos Wallboard comes in a permanent buff color of distinctive appearance and is made to fit standard joists—48x96 and 48x48.

Send the slip below for practical literature and specimens showing the application of Linabestos to the lining of kitchens, laundries, bathrooms, game rooms, libraries, wainscoting, etc., the use of Ambler Asbestos Building Lumber in half-timbering and all other outside paneling, trim, doors, etc.

Maybe you need right now the interesting information we are glad to give enterprising contractors on Ambler Asbestos Shingles and Ambler Asbestos Corrugated Roofing and Siding.

**Address Dept. A**

## Asbestos Shingle, Slate & Sheathing Company

**Ambler Pennsylvania**

**Branch Offices: Atlanta, Baltimore, Boston, Buffalo, Chicago, Cincinnati, Cleveland, Minneapolis, New York, Philadelphia, Pittsburgh, Washington, Wilkes-Barre**

***Distributors throughout the Country***



**Asbestos Shingle, Slate & Sheathing Company**
**Ambler, Pennsylvania**

I am interested in the items checked and welcome further information:

☐ Ambler Asbestos Shingles. Made in three styles, four permanent colors—Newport Gray, Natural Slate, Red, and Green. Lie snug to the roof, forming water-tight and fire-tight covering.

☐ Ambler Asbestos Building Lumber. For siding, partitions, trim, doors, and wherever fire resistance is essential. Designed particularly for outside construction but also suitable for interior uses where heavy, strong material is required.

☐ Ambler Asbestos Corrugated Roofing and Siding. For industrial, railroad and farm buildings.

☐ Ambler Linabestos Wallboard. For interior construction only—wherever a superior, flame-proof, fire-resisting wallboard is needed.

**Samples and literature showing reproductions of installations furnished without obligation**

Name.....

Business or Position..... Address.....

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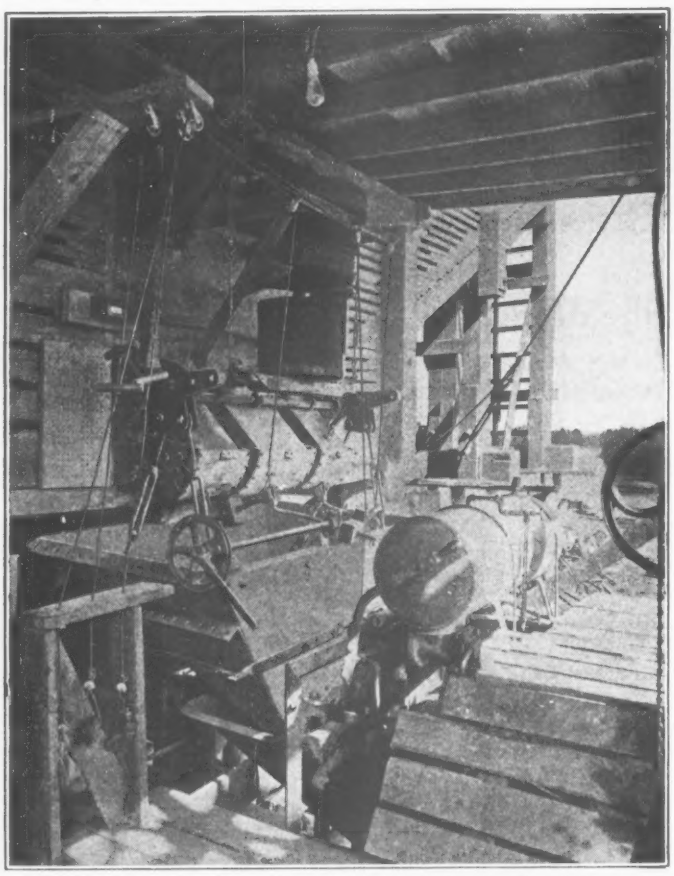
## New Device Proportions Batches

ONE of the newest developments in construction equipment is a device for more accurately measuring concrete aggregates into batches, resulting in more uniformly proportioned and stronger concrete and a saving in men and time. Two of the new machines are already in use by the Parklap Construction Co. on the Sherman Island Hydro-Electric development on the Hudson River for the International Paper Company. One of them is shown in the attached proof.

One cause for varying strength in concrete is the irregularity in quantities of fine materials delivered by volume measurement even with laboratory apparatus. In the field the quantities of fine material are even more uncertain and may be 10 to 12 per cent less than their apparent bulk. Sand "fluffs" or bulks according to its degree of fineness and moisture content. It is, therefore, almost impossible to measure batches accurately and uniformly by volume with the means usually available in the field.



**New Proportioner in Action. This Ingenious Device Measures Aggregates by Weight Eliminating Any Guesswork in Mixing the Concrete.**

The new proportioner overcomes these difficulties by measuring the aggregates by weight instead of by volume. Only one man is required to operate the mixer and the proportioner.

It is a steel panel of ¼-inch plate so constructed that it can be framed into any standard bin. At the bottom of the panel are three openings fitted with bin gates. A center gate 18x12 inches is for stone. The 12x12-inch gates at each side are for sand and cement.

A shaft extending the width of the plate is supported by double ball bearings mounted in dust-proof split brackets. On this shaft are three cams, one operating each gate. These cams are adjustable so that they may trip their respective latches when the proper balance is obtained. Keyed to this shaft and mounted in the split brackets are bell cranks forming the scale beams. To the upper ends are attached cables running over pulleys to the counterpoises. From the lower ends is hung an auxiliary hopper discharging into the batch hopper of the mixer. The bell cranks being keyed to the shaft and connected together thru an endless cable at the upper point of the crank, act as a unit. The top channel, with its braces extending outward from the channel face, supports the guide for the counterpoises and the pulleys for the cable. Two of the counterpoises are normally seated on these angle braces while the third rests on the channel cradled in the table. By means of ropes leading from eye bolts fastened to the gates up thru pulleys supported in the top brace, thence to one side of the panel and thence to the operator, the latter is able, from one position, to open the various gates and operate the proportioner.

Three pans of sufficient size to take care of the counterweight necessary for weighing the sand, stone and cement, ride on a vertical shaft. The bottom pan is for stone, the middle pan for cement and the top for sand. The ratio between the weight in the pans and the weight of the material in the auxiliary hopper is one to five. Therefore, if it is desired to use 1,000 lbs. of stone in the batch, a counterweight of 200 lbs. is placed in the stone pan. Similarly, the weights of the upper two pans may be adjusted to give the correct weights of cement and sand desired.

To measure a batch the stone gate is opened and as the weight of the stone in the auxiliary hopper balances the weight in the bottom pan, the pan rises and a cam on the horizontal shaft automatically closes the gate on the stone bin. The cement gate is then opened. When the combined weight of the stone and cement in the auxiliary hopper balances the weight of the two lower pans, the pans rise and a second cam closes the gate. The same cycle takes place in operating the sand gate except that the weight of the material in the auxiliary hopper must counterbalance the weight of the material in all three pans. The batch is then complete and is dumped into the mixer. As the material leaves the auxiliary hopper the pans automatically drop to their original positions and the proportioner is then ready for another batch.

So accurately can materials be measured with the proportioner that the error per 1-yard batch will rarely exceed 50 lbs. It is not necessary to have a skilled operator to secure accurate measurements on the job with this device.

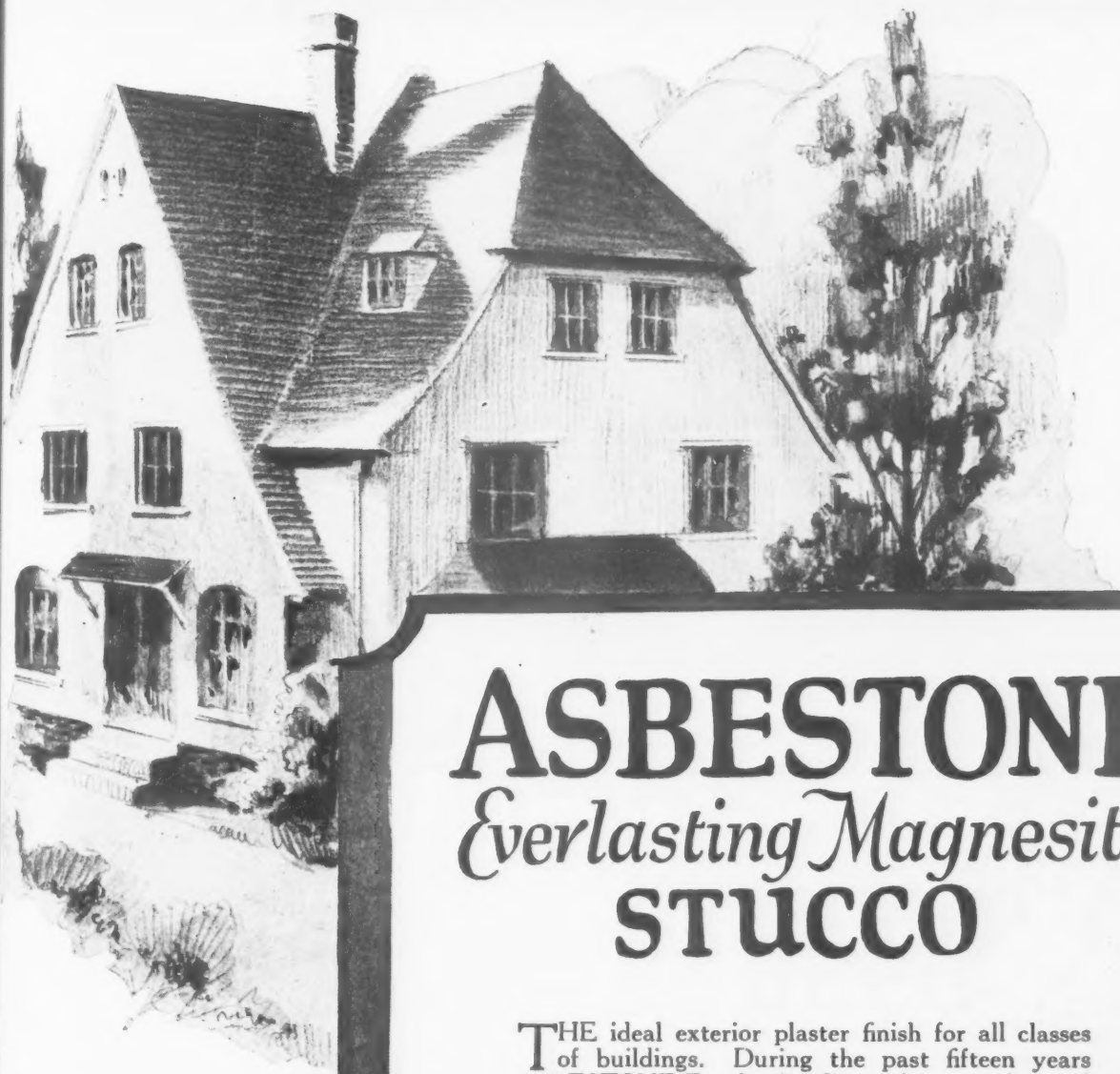
✣

## New Stucco Machine

MECHANICAL application of stucco, like other mechanical methods, has its decided advantages over the manual method. That is one reason why builders in general will be interested in a new stucco machine which is now available.

This stucco machine consists of a hopper into which stucco is poured. The mixture works down into the feeder in which are located four spring steel blades. There are openings in the feeder thru which the stucco is forced by the

(*Continued to page 136.*)



# ASBESTONE
## *Everlasting Magnesite* STUCCO

THE ideal exterior plaster finish for all classes of buildings. During the past fifteen years ASBESTONE Everlasting Stucco has gone forward step by step to a position of unquestioned leadership, due simply to the fact that it is undoubtedly the best Magnesite Stucco manufactured, and the service it has given its users.

It is fireproof, non-absorbing, water resisting, will last a lifetime. Can be applied to wood, cement, brick or stone, is not liable to crack, chip or warp. Its large and varied selection of artistic stone finishes makes it the ideal material for old or new buildings.

**Cuts Fuel and Painting Bills**

*Consult your local dealer; if he is unable to supply you, write us direct.*

Send for descriptive literature and free samples.

**Franklyn R. Muller & Company**

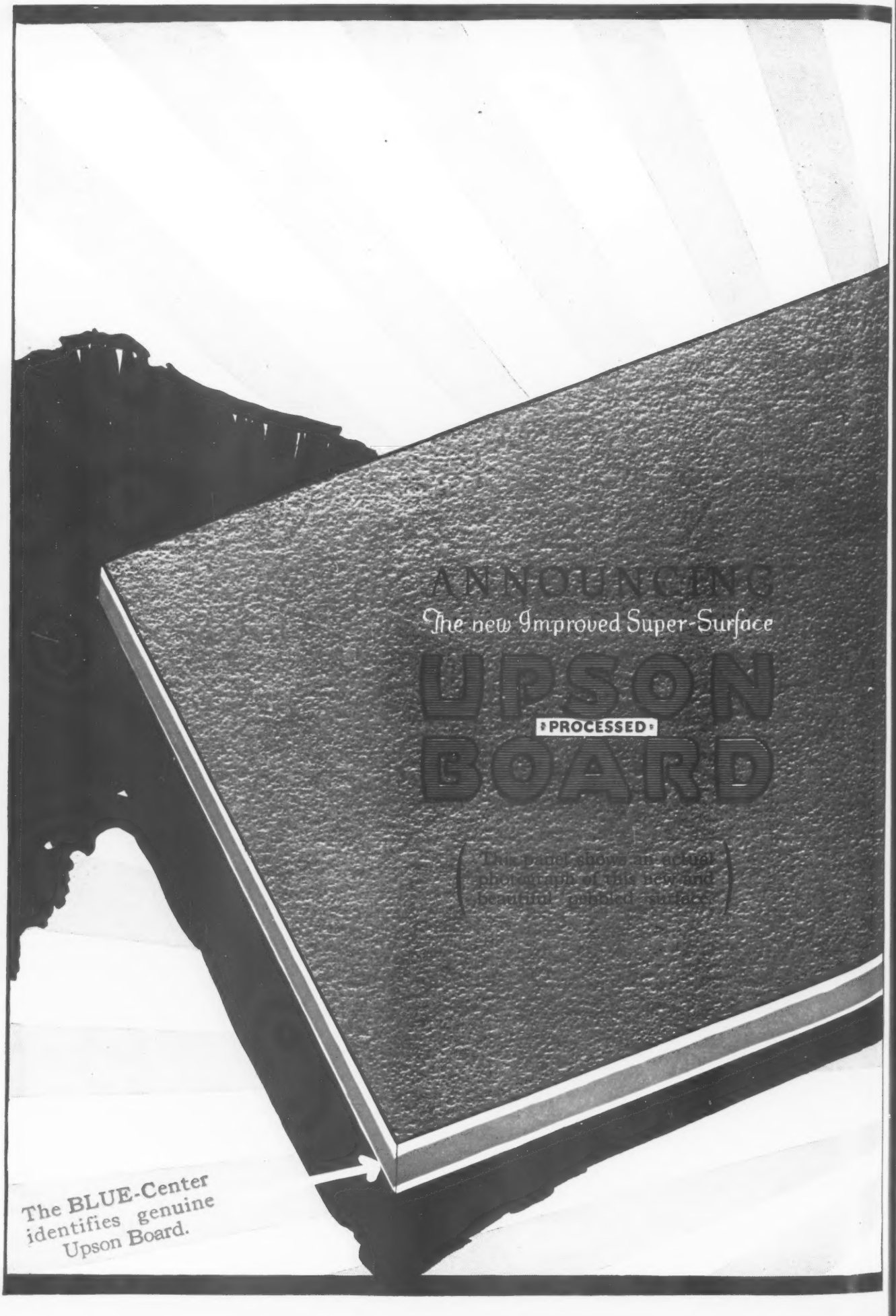
**Magnesite Stucco and Composition Flooring Manufacturers**

**612 Madison Street Waukegan, Ill.**

**Established 1906**

MULLER ASBESTONE GUARANTEED PRODUCTS TRADE MARK

*Can be applied in coldest winter weather just as readily as in mid-summer*


ANNOUNCING
The new Improved Super-Surface
UPSON
PROCESSED
BOARD
(This panel shows an actual photograph of this new and beautiful grained surface)
The BLUE-Center identifies genuine Upson Board.

# "The most beautiful board on the market"

SUPER-SURFACE Upson Board, pictured here, is the result of years of patient effort.

It marks the accomplishment of what was deemed the impossible—the pebbling of so *hard* a board as Upson Board.

It is really two surfaced boards in one! One side is smooth, without the lumps found in ordinary board, and adapted especially for enamel — while the other side has the beautiful "mat" or pebbled surface shown in this announcement. "*Super*" surface gives the soft, velvety mat finish so necessary for the proper use of flat paints.

**Either side can be used!**

All printing has been removed from both sides of *Super*-Surface Upson Board. The trademark appears only on the selvage. Big, ugly trademarks on either side are a thing of the past on good wall board.

The painting surface, even better than ever before—*saves* money for your buyers. Brush marks are practically eliminated. The paint-saving amounts to from $5 to $15 per room over ordinary boards. Upson Board thus becomes the cheapest board when applied and painted.

Your customers will be quick to detect the *difference* between this *Super*-Surface and the rough, fuzzy surfaces of many boards. Some makers even seek to capitalize on your credulity by attempting to surround a lumpy, "felt-marked" surface with some fancy name.

In justice to yourself and your customers, insist on using genuine *Blue*-Center Upson Board. The blue center is your protection against worthless imitations.

Write today for a sample of *Super*-Surface Upson Board, and a sample of Upson Fibre-Tile for bathrooms, kitchens, restaurants, or barber shops.

UPSON PROCESSED BOARD

THE UPSON COMPANY
*Fiber Board Authorities*
205 Upson Point Lockport, N. Y.

UPSON PROCESSED BOARD
THE UPSON COMPANY LOCKPORT N.Y.

Mechanical Stucco Machine for Applying Stucco to Walls. The Material Is Poured in Thru the Top and Sprayed Out by Turning the Handle on the Side.

blades into a cylinder. This cylinder is walled off entirely from the hopper to prevent any clogging. The stucco is then forced out of the cylinder and on to the building by the blades, which whirl around by means of a handle which the operator turns. This sprays the stucco evenly with no waste and without dropping the material on the ground.

The feeder plate can be regulated and adjusted so that only one opening can be used, thus regulating the width of the stucco spray. This is suitable for trimming up around windows and doors. The machine is very light in weight, about 10¾ lbs., and is suitable for all kinds of stucco.

✣

## New Fastener Overcomes Wallboard Objection

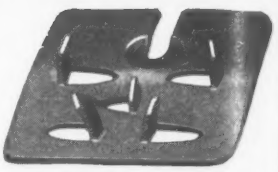
ONE of the big objections to the use of wallboard, the use of nails in the centers of panels, has been successfully overcome by the invention of a self-clinching fastener. This simple device consists of a thin piece of specially tempered steel about an inch square. From one side, and extending nearly to the center, is a slot for nailing the device to studs or furring. Four curved prongs and one straight one project from one face of the fastener.

It is the particular curve of the four curved prongs that gives the fastener the "self-clinching" part of its name.

Fasteners Are Nailed to Intermediate Studs (or Furring Over Old Plaster) Every 9 Inches.

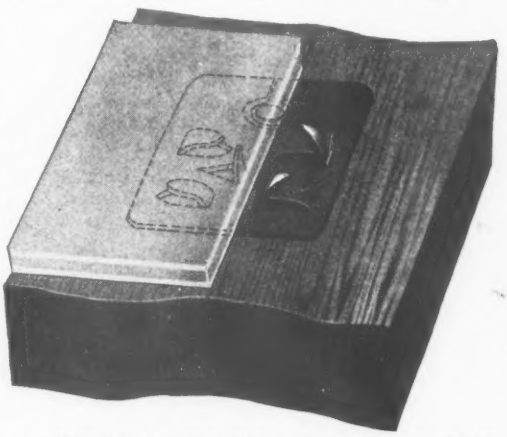
Panel Is Nailed at Top. A Piece of 2 by 4 Is Laid Over Studs and Struck with Heavy Hammer Blows. Fasteners Clinch Into Back of Board.

In using these fasteners they are first nailed, about every nine inches, to studs or joists. The panel of wallboard to be applied is nailed firmly to one end (the top if on the wall or the end if on the ceiling).



A View of Prong Side of a Self-Clinching Fastener, Showing the Four Curved Prongs Which Clinch Into the Board, and the Straight Prong Which Holds Panel of Wallboard From Slipping to Either Side.

A piece of 2 x 4 a couple of feet long, with slightly rounded edges to protect the face of the panel, is then placed on the panel directly over and in line with the fasteners. The 2 x 4 is struck a few heavy blows with a hammer. The panel is thus driven down hard onto the prongs of the fasteners. As the curved prongs enter the back of the panel of wall board, they automatically clinch, taking a bull dog grip on the fiber of the board. The straight prong holds the panel firmly, preventing it from shifting from side to side.



Dotted Lines Show How Curved Prongs Clinch as They Are Forced Into Wallboard. Straight Center Prong Keeps Board From Slipping to Either Side. Prongs on the Right Show Normal Position Before Board Is Applied to Fasteners.

The fasteners are used only on intermediate studs. There is no indication of how the centers of panels are held in place. Yet tests have proved that one self-clinching fastener holds more firmly than nine finishing nails driven in to the square inch.

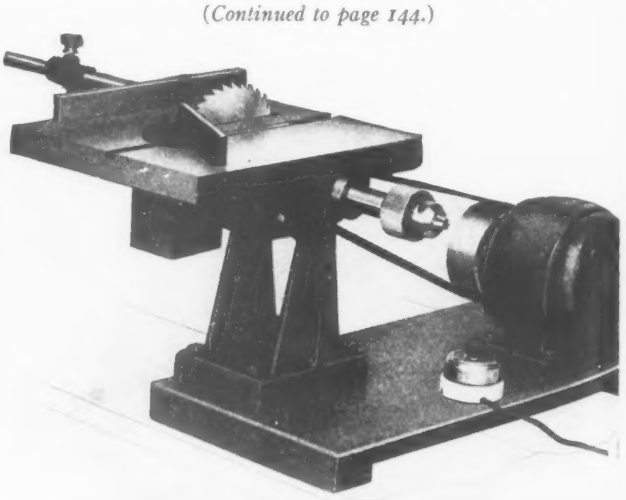
Since the face of the panel is not marred or disfigured in any way, there are no nails to countersink and no nail holes to fill before finishing—both tedious expensive jobs, and seldom done perfectly.

✣

## Small, Handy Bench Machine for Light Work

THERE has always been a real need for a small bench machine for handling light work in wood and soft metals which cannot be handled economically by the larger, heavier,

(*Continued to page 144.*)



Small Bench Machine for Light Work in Wood and Metals.

# PERFECT HEATING

The inconvenience, labor and dirty drudgery of adjusting a coal burning heating plant is one of the principal reasons why so many people prefer to live in apartments and hotels instead of maintaining a home of their own. This means less building of homes and more congestion in crowded, undersized apartment buildings.

Offer to install a Combustion Fuel Oil Burner for your prospective client and you will remove one of the greatest obstacles that stand between you and a contract.

## BURNS FUEL OIL INSTEAD OF COAL

**IN ANY KIND OR MAKE OF HEATING PLANT**

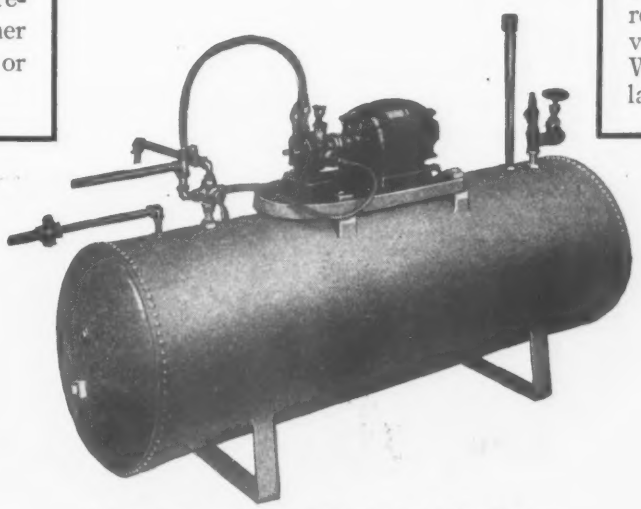
The Combustion Fuel Oil Burner is the most highly developed oil burner made. It burns cheap, low grade fuel oil instead of kerosene, naphtha, distillate or any of the more expensive oils and is more economical to burn than coal.

**The Architect, Contractor or Builder proves that he is progressive, alert and well informed on all building equipment when he recommends that his client install**

Can be installed in Hot Air, Hot Water, Steam or Vapor Heating plants with equally satisfactory results, regardless of whether the plant is old or new.

## THE COMBUSTION FUEL OIL BURNER

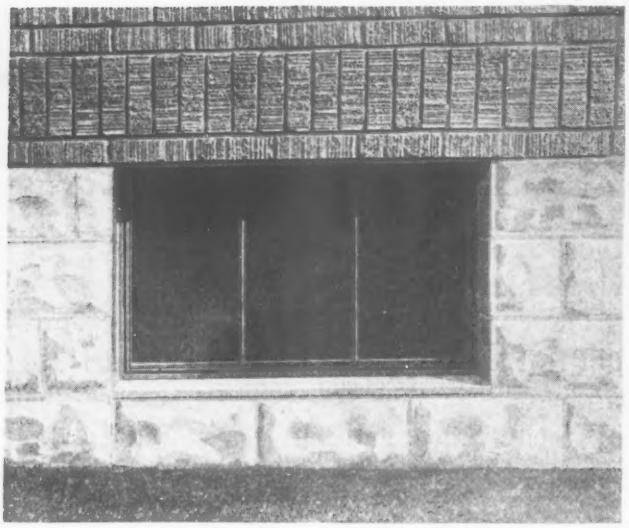
**Dealers Notice:** There is still some good territory open for General Representatives. Our proposition, to high caliber, financially responsible men is very attractive. Wire for particulars at once



**"Combustion" No. 1 Ready for Installation**

# THE COMBUSTION COMPANY

174 NORTH MICHIGAN AVE. CHICAGO, ILLINOIS



One Type of Basement Steel Window As It Appears Closed.

Same Window Opened—Inside View.

# New Steel Basement Sash Marks Step Forward

**UNIT TYPE WINDOW AFFORDS ARCHITECT, CONTRACTOR AND HOUSEHOLDER SATISFACTORY AND ECONOMICAL BASEMENT OPENING**

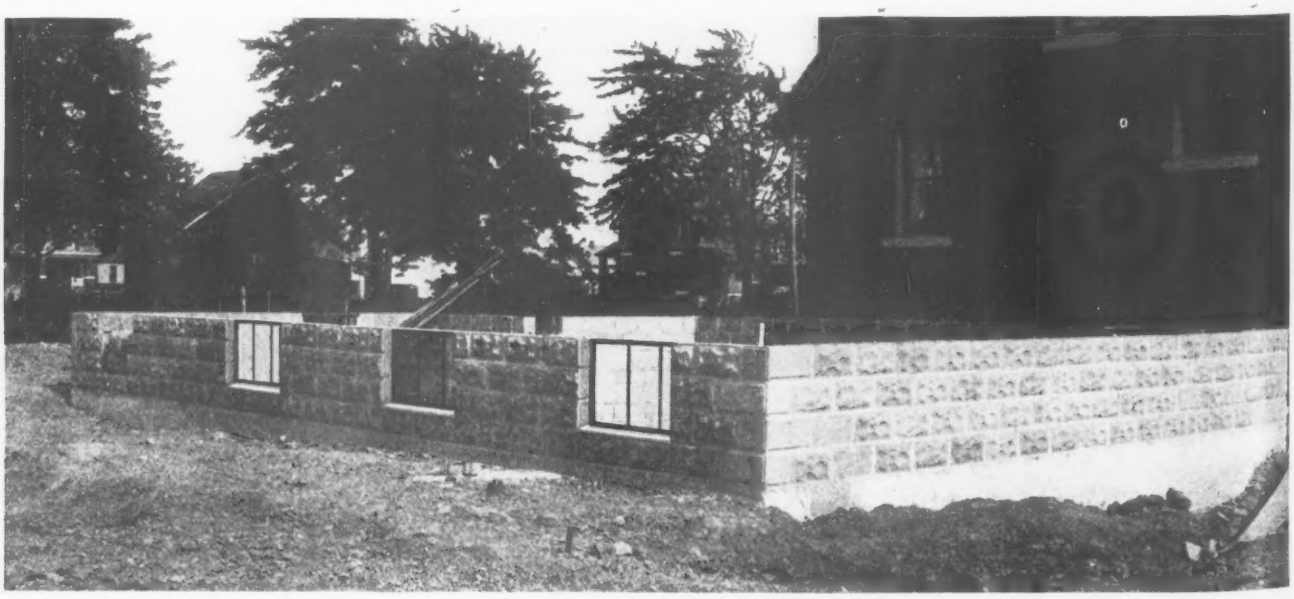
THE old saying "there is nothing new under the sun" does not apply to the building field. Manufacturers of building materials and accessories are constantly improving old products and devising new ones to aid the contractor and architect.

Compare the factory of today with that of twenty years ago. They are in no way identical, yet they are both factories. Windows are responsible for the change.

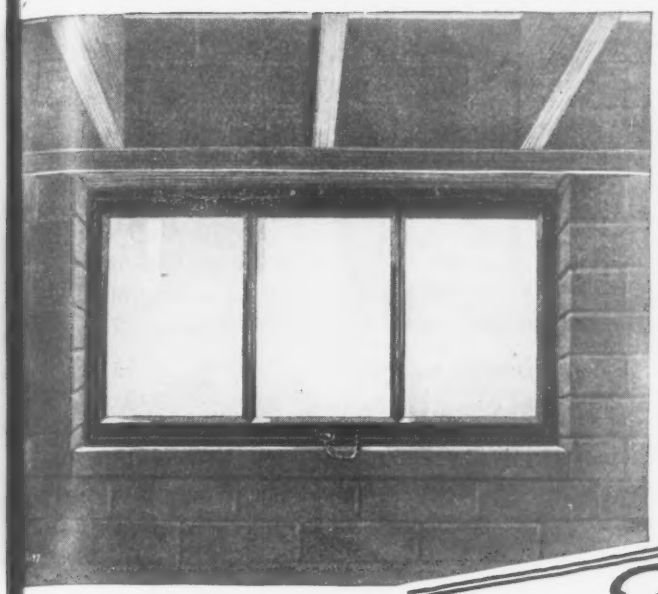
The question that comes to mind in face of this remarkable transition is what effect will a new steel basement sash have upon the building of homes? This new steel sash is now being marketed for use in residences, stores and apartments.

It is built to admit 40 to 60 per cent more light than an ordinary wooden sash, this extra illumination being secured thru the use of narrow, solid rolled steel bars in both frame and sash, permitting the use of larger glass lights for brighter laundries and more sanitary cellars. This sash operates just like the ordinary basement window with which everyone is acquainted. It is hinged at the top and swings in. The fact that steel cannot warp removes the difficulty experienced by the average home owner in trying to open and close his basement windows in bad weather when the sash has become swollen or warped.

The new window is a complete unit, the frame and sash being machine fitted with heavy locks and hinges rigidly attached. Some have heavy steel spring locks that automatically lock the window when it is closed. Sash glazed with wire glass gives the best assurance of safety. Moreover when windows are glazed on the inside as they are in this steel sash is it impossible for a burglar to remove the pane which is quite simple



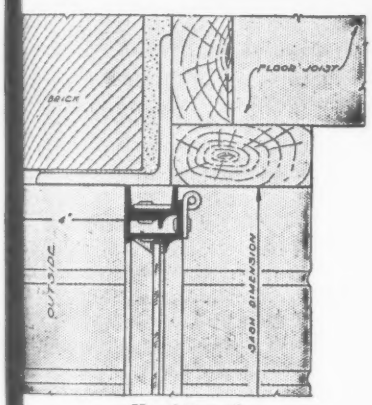
Completed Basement with Steel Sash in Place. Note the Increased Glass Area in This Type of Window. This Means More Light for Laundry and Other Rooms in Basement.



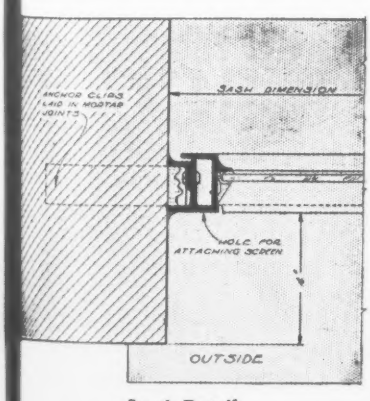
# Fenestra Basement windows in Steel

## They Appeal to Owners, Architects, Engineers and Contractors Because:

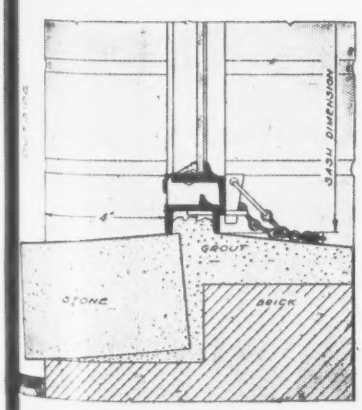
- They cost no more than wood windows
- Admit 40% to 60% more light
- Afford protection from burglars
- Never warp nor stick
- Keep out mice and rats
- Are easy to screen
- Provide fire protection
- Last longer
- They are very easy to install
- Extra frames are unnecessary
- Require no planing nor fitting of sash
- Ventilators are removable
- Hardware is attached
- Save time in setting
- Come already painted



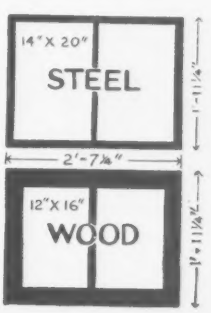

Head Detail




Jamb Detail




Sill Detail

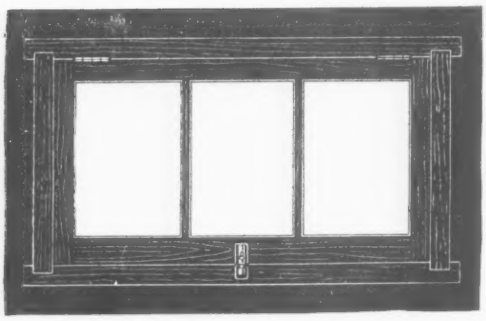



## Ask Your Dealer

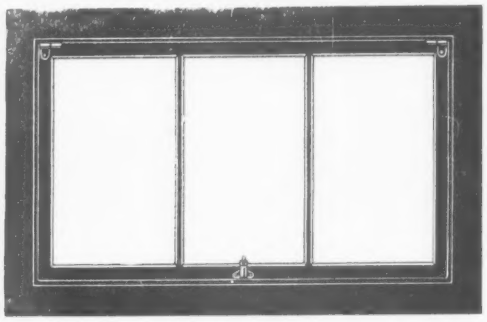
*Our book showing how to install these windows in all types of buildings sent free on request*

**Fenestra**
STEEL WINDOWALLS

**Detroit Steel Products Company**
2213 East Grand Boulevard, Detroit
"World's Largest Makers of Steel Windows"



Light Area Provided by Old Style Wood Sash



Light Area Provided by This Framed Steel Sash

when putty is on the outside. There is an arrangement in some whereby a padlock may be used instead of the lock provided. This is to prevent burglars from cracking out a pane of glass near the lock and opening the window by reaching in. In sections where mice and rats are particularly troublesome this steel window will be found advantageous.

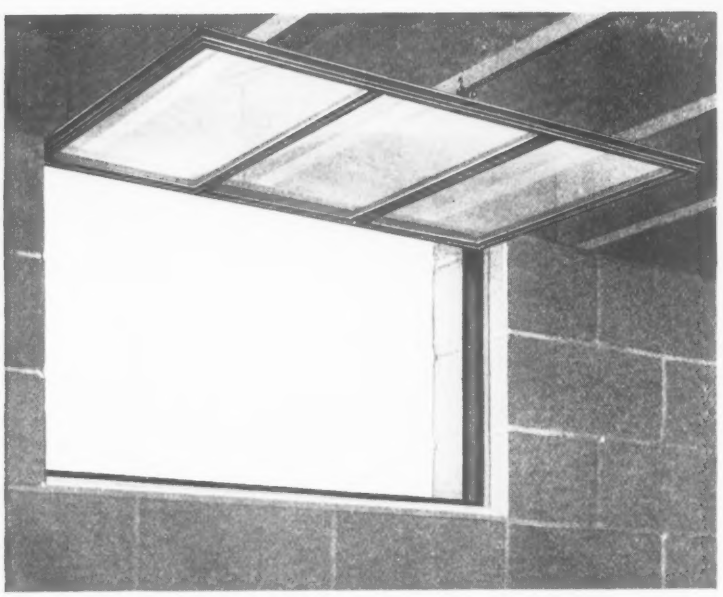
The steel basement window is glazed from the inside and the removable steel pivots or hinge pins makes it a simple matter to remove the sash from the frame to be sent away to be glazed. The sill member on the frame of a wood basement window slopes toward the outside. This makes it impossible to set the wood frame on a level wall and have it remain upright without bracing. The sill on steel window tho narrower than wood is perfectly level and the window may therefore be set on the sill in a bed of mortar with the assurance that it will remain exactly as placed, no bracing being necessary. It is estimated this saves the carpenter at least ten minutes on every window.

Just at present the sash is made in types 2 and 3 lights each.

The windows are shipped without glass, but glazing clips are supplied, these being small wire clips, similar to those that have always been used in glazing steel sash.

The outside bars of the window are imbeded in the building construction in the way usually employed where steel sash is used. If desired the building construction may come up flush and tight against the window on both sides, and at top and bottom. Anchorage is then secured by means of four straight flat pieces of steel about 1 inch wide by 4 inches long. These are laid in the mortar joints in such a way that the ends extend about ½ inch into the frames at the jambs of the window. Two clips are used on each side and these are sufficient to anchor the window.


# At last—*A steel basement window — that costs less than wood* ——



*More daylight for the basement*

**TRUSCON**
TRUSCON STEEL CO.
**STEEL BASEMENT WINDOWS**

Home builders have always wanted an indestructible basement window like this.

A steel unit ready to install—no fitting of sash to a frame—no hinges and locks to buy—the Truscon Steel Basement Window is fully equipped. There are no extras. Louble contact weathering makes it storm proof. It works just like ordinary sash.

Throw in the coal and wood—it does not hurt these rugged, steel, indestructible windows.

—And they actually cost less than wood.

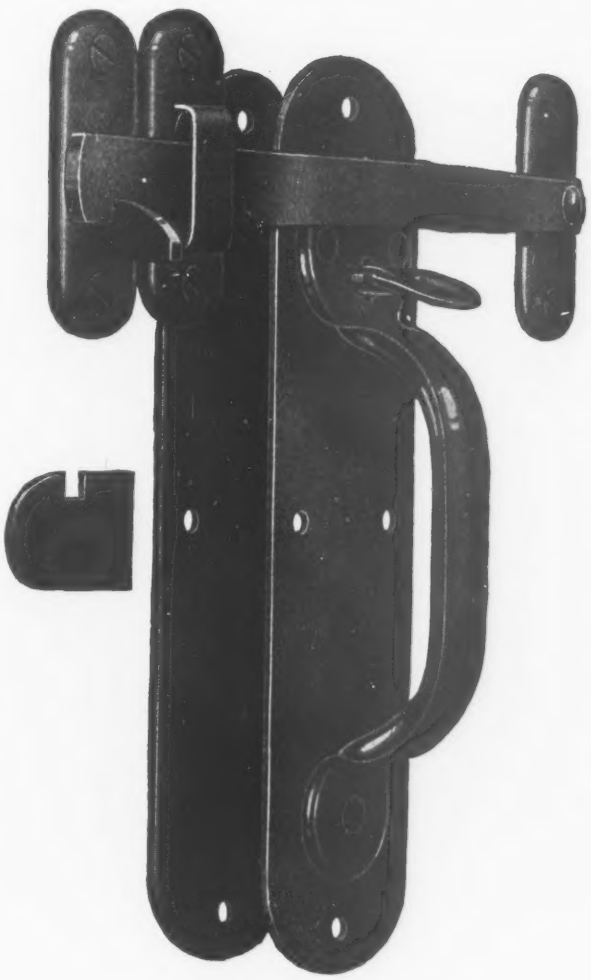
*Get figures before you build your next house*

**Truscon Steel Company, Youngstown, Ohio**
**There are Truscon Dealers Everywhere**

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER

# STANLEY

## *Wrought Steel*



Finishes: Japanned, Dead Black Japanned, Stanley Sherardized, Sherardized Dead Black Japan.

## DUPLEX LATCH

### No. 1269

With this latch, the door may be operated easily from either side. It is recommended for use on doors of medium size where a small latch is required.

Length of bar, $8\frac{3}{4}$″

Length of escutcheon plate, $9\frac{1}{2}$″

Width, $2\frac{1}{2}$″

Handle, $7\frac{1}{2}$″ long; $\frac{3}{4}$″ wide

Ends of handle, $2\frac{3}{4}$″ x $1\frac{1}{2}$″ wide

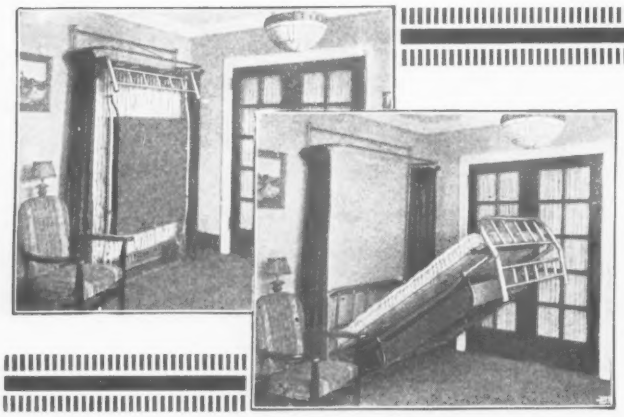
Packed singly in box with 1″ x 11 R. H. screws for the handle plates, and $1\frac{1}{4}$″ x 11 F. H. screws for all other parts. One extra flush catch or mortise strike included.

STANLEY S.W.

## THE STANLEY WORKS
### NEW BRITAIN, CONN.

New York · Seattle · Chicago · Los Angeles · San Francisco

*Manufacturers of Wrought Hardware and Carpenters' Tools*



(Patented Dec. 20, 1921)

# Hangall

The

## Hadley Bed Wardrobe

**Out of the way—Out of sight**
**Very accessible.**

It only occupies space between the bed tubing—more convenient than a closet—out of the way—out of sight—yet, easily accessible; each of the twelve hangers may be quickly removed, by simply bringing the rack forward on four pivot slides.

***Sanitary, Moth and Dust Proof.***

The double flanged doors fit snugly with the double flanged sides, top and bottom of the wardrobe, providing a perfectly sanitary storage—*moth and dust proof.*

***Easily Attached.***

Securely and quickly fastened to the bed tubing by four interlocking clamps; requiring simply a screw driver to install.

***Swings Automatically.***

It swings automatically downward and upward on four cleverly designed arms, the clothing falling into position without being disarranged or wrinkled. Clothing always keeps its freshness in the Hangall—provision being made for twelve hangers, six on either side, with 36 in. space between racks and base—allowing lady's skirt or frock to hang full length.

Doors are kept closed by a special mechanical device.

***Three Sizes.***

The Hangall fits full size, three-fourths size and twin beds—the first two accommodating twelve hangers, the other six.

### Hadley Disappearing Dresser

Another space saver and convenience, which takes the place of a dressing table. When in position you get a complete, attractive and convenient dresser, made of the same material and with the same care as the Hangall Fits all sizes of Murphy beds.

***Write us for illustrated circular and see the HANGALL at your dealer's***

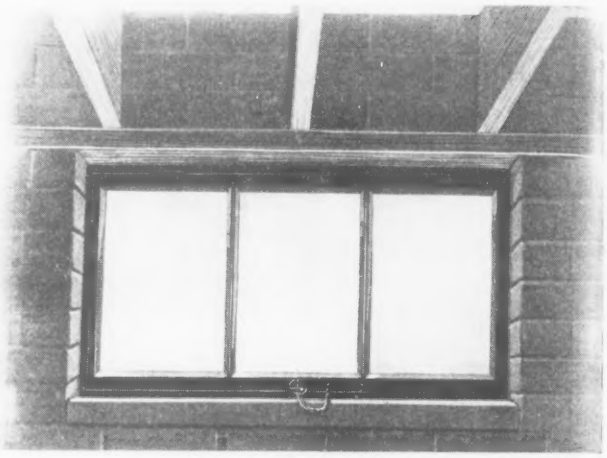
**Distributed by**

**THE MURPHY DOOR BED CO.**

22 West Monroe Street, Chicago
469 Fifth Avenue, New York,
1534 Blake Street, Denver.
912 Kresge Building, Detroit, Mich.
205 O'Connor St., Ottawa, Can.
Crocker Bldg., San Francisco.
Chemical Bldg., St. Louis.
709 Second Avenue, Seattle, Wash.
1140-42 Hannah Bldg., Cleveland.
1021-23 Grand Ave., Kansas City.
220 N. St. Paul St., Dallas, Tex.
204 Peach Tree Arcade, Atlanta, Ga.

**Manufactured by**

**Hart & Hutchinson Company**
**New Britain, Conn., U. S. A.**

**Another Type Basement Steel Sash, Showing Permanent Lock Attacked.**

Complete booklets showing construction and installation details, describing just how the window is to be installed, have been issued and are being widely distributed.

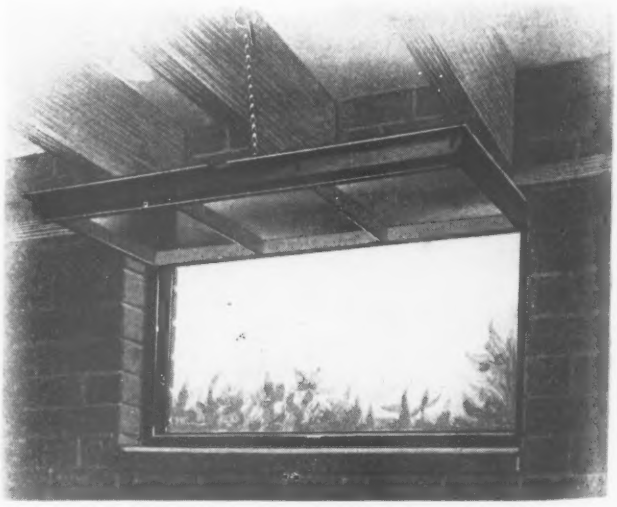
The manufacturers of the basement window have decided to market their product exclusively thru dealers, and believe that they see a market for many thousands of these windows in all types of residential, as well as industrial and commercial constructions.

Screens may be easily attached to the outside of the frame. Holes are tapped in the steel frame so that it is not necessary to make a special frame for the screen. This item is of importance to builders.

The feature which appeals most strongly to buyers, naturally, is the fact that prices on steel basement windows in standard sizes compare favorably with wood window prices. Wood prices have a wide range but on the average steel windows cost no more and frequently they actually cost less.

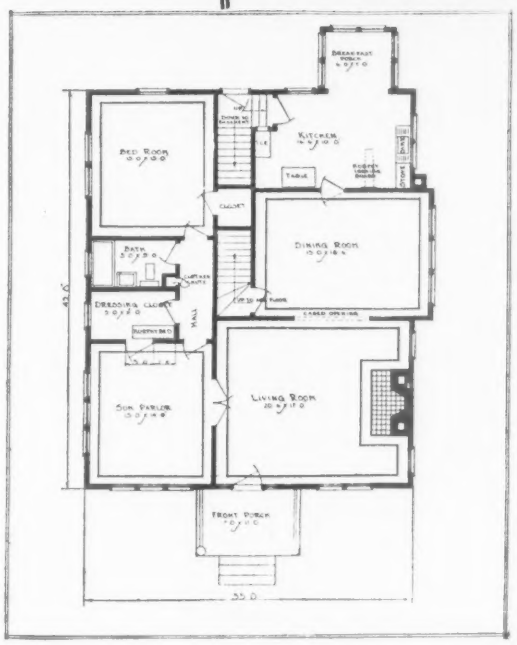
✣

BE careful in driving down hill. Do not go faster than in driving up hill.



**Window As It Appears Open with Chain Holding in Position. Note Level Instead of Sloping Sill**

OWNER — Fred Meiz, 4555 Guilford Ave., Indianapolis — Murphy In-A-Dor Bed converts sun-parlor into sleeping room.



# The Commercial Value of the Murphy Idea

Leading Contractors and Builders—whether building speculatively or directly under contract—have proved the "dollars and sense" value of the Murphy Idea. Murphy In-A-Dor Beds in an apartment or small house increase its value and salability.

The extra "selling points" which the Murphy In-A-Dor Bed gives you are of inestimable importance. For instance—both the housewife and husband will be impressed by the flexible advantages of the Murphy In-A-Dor Bed—the possibility of converting any room into a bed room—the saving in furnishing cost—as well as the added ease of housekeeping.

## Our Technical Department

is always at your disposal. Architects and builders have found it most valuable on account of our fund of practical ideas based on years of experience—and the time-saving features. This service is gratis. Ask for full information.

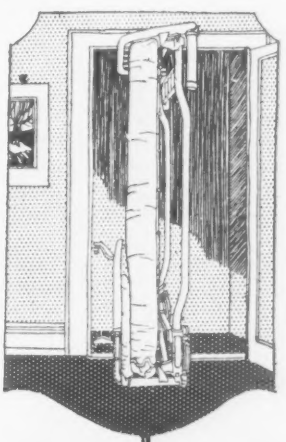
## MURPHY DOOR BED COMPANY

*Offices in All Principal Cities*

| | | | |
|---|---|---|---|
| 22 West Monroe . . | Chicago, Ill. | 912 Kresge Bldg. . | Detroit, Mich. |
| 1534 Blake Street . . | Denver, Colo. | 709 Second Ave. . | Seattle, Wash. |
| Crocker Building . . | San Francisco, Calif. | 1021-23 Grand Ave. | Kansas City, Mo. |
| 1140-42 Hanna Bldg. . | Cleveland, Ohio | 469 Fifth Ave. . . | New York City |
| 204 Peach Tree Arcade | Atlanta, Ga. | 205 O'Connor St. . | Ottawa, Canada |
| Chemical Bldg. . . | St. Louis, Mo. | 220 N. St. Paul St. . | Dallas, Texas |

# *The* MURPHY IN-A-DOR BED

**There is only one "In-A-Dor" Bed "THE MURPHY"**



## Small Handy Bench Machine for Light Work

*(Continued from page 136.)*

more expensive machines. The solution is offered in the form of a compact, serviceable machine combining grinder, polisher, buffer, sander, drill and saw. Its advent on the market will be noticed, no doubt, with interest by carpenters, contractors, cabinet makers, manual training schools and private shops. Its size and the fact that it is driven by a ¼ h. p. motor makes it particularly convenient and economical for this kind of work.

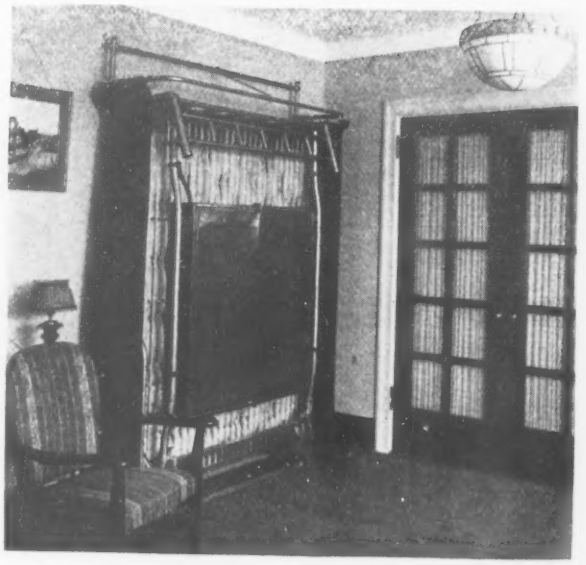
Altho only 10 inches in height and weighing 31 lbs., it is a precision machine handling 4 and 5-inch grinding wheels, 6-inch saws, 6 and 8-inch discs and ⅜-inch chuck. The top is easily removed or tilted to 5 degrees for sawing and grinding.

✣

## Space-Saving Wardrobe for Wall Beds

THE idea of space saving introduced by the wall or concealed bed is carried still further by the invention of a space-saving wardrobe designed especially for this type of bed. It is designed primarily for the recess type of wall bed where no closets are provided but can be used on any type as the illustration shows.

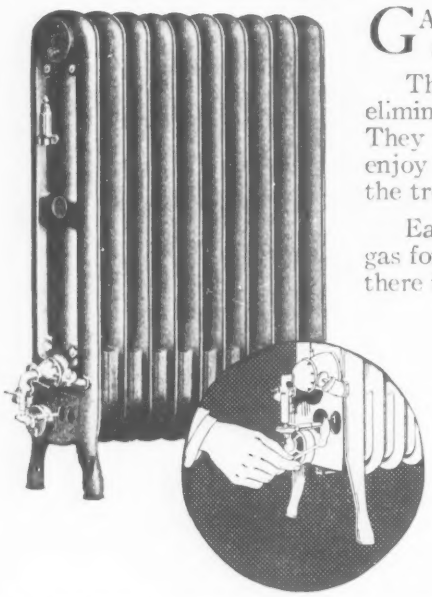
This wardrobe occupies the space between the tubing of the bed out of the way. It holds twelve hangers which can be quickly removed by bringing the rack forward on four pivot slides. When the bed is lowered the doors of this wardrobe close and the devivce is out of the way. The wardrobe is easily fastened to the bed by means of interlocking clamps. It swings automatically downward and upward away from the spring on four arms, the clothing falls into position without being wrinkled. It is made in three sizes, for the full, three-quarters, and twin bed, and is 36 inches from rack to base, allowing plenty of room for both men's and women's clothes.



**Space-Saving Wardrobe Attached to Wall Bed. It Eliminates Clothes Closet in Floor Plan.**

This wardrobe is used in large apartment buildings and also in small homes where space is limited and none can be used for closet purposes.


# A Profit Maker *for* Builders



GASTEAM radiators make the ideal heat for any type of building—stores, homes, offices, churches, theatres, etc.

They are particularly successful in bungalows and small residences eliminating the expense of basement excavation, chimney, and boiler. They can be sold on installment payments, allowing the user to enjoy their economy, freedom from dirt and the nuisance of ashes, and the trouble of stoking a furnace.

Each GASTEAM radiator is a steam heating plant in itself—utilizing gas for fuel. They are built for permanence and dependability, and there is nothing to get out of order or require attention.

Every building you put up must be heated. Let us tell you more about this modern way of heating, and put you in touch with GASTEAM users in your vicinity.

JAMES B. CLOW & SONS
*General Offices:* 534-546 S. Franklin St., Chicago
*Sales offices in the principal cities*

CLOW

James B. Clow & Sons,
534-546 S. Franklin Street, Chicago
Send me details of your installment method of financing GASTEAM installations.
*Name*_____
*Address*_____

# INSTALL Brasco COPPER STORE FRONTS

## CONTRACTORS WANTED!

—to transform old store fronts into modern display fronts that will make the crowds Stop, Look and Buy.

Let us help you make more money in the year 1922. There are all kinds of prospects for new fronts right in your neighborhood, and we will help you land the contract if you will just look about you and scare up the prospect.

If you know of any building owner or storekeeper whose store front has gone out of date just send us his name and we will help you land the job of installation.

For complete information concerning Brasco copper store fronts use the coupon. *Look us up in Sweet's, page 728.*

*Will outlast them all*

**Brasco Manufacturing Co., 5029 S. Wabash Ave., CHICAGO**

Please send me your FREE book on copper store fronts.

Name_____

Address_____

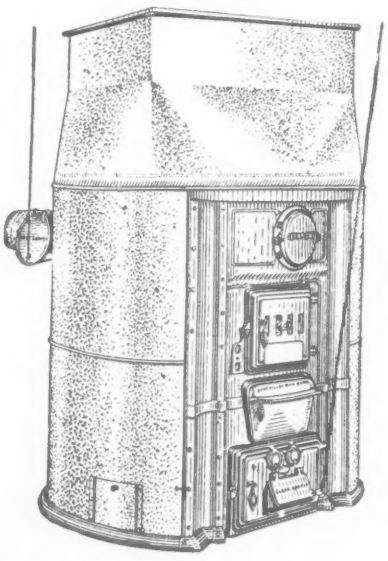
City_____ State_____

# The KULP FURNACE

## $82.00 Buys

## KULPS CAST IRON TRIPLE CASING

## 20 in. Firepot Pipeless Complete



**Mr. Contractor:**

All we ask of you is to mail us a list of your plumbing and heating material that you are ready to buy at the present time and get our net cash prices before buying. Send for circular on KULP Furnaces and compare it with others. A sample order will convince you.

**OUR NET PRICES ON PIPELESS FURNACES—COMPLETE**

| | |
|---|---|
| 20 in. Firepot | $ 82.00 |
| 22 " " | 88.00 |
| 24 " " | 110.00 |

**OUR NET PRICES ON PIPE FURNACES—LESS CASINGS**

| | |
|---|---|
| 20 in. Firepot | $ 55.62 |
| 22 " " | 66.86 |
| 24 " " | 82.56 |

*These prices are good for February, 1922*

## AGENTS WANTED FOR EXCLUSIVE TERRITORIES

We will soon have our 18-inch and 27-inch firepot Furnaces ready for you.

*Write today*

## CHARLES P. KULP & CO.

1607-9-11 So. State St., Chicago, Ill.


## Lumber Yard Blaze Stopped By Cement

A NEW and novel method of fighting fire was inaugurated by Fire Chief Davyes Troughton of Seneca, Kansas, at a recent blaze which threatened to destroy a lumber yard and adjoining property in Oneida, Kansas, and it was only thru the prompt action of the chief in carrying out his new idea that the fire was controlled before it caused more serious damage. By using portland cement he not only conquered a threatening fire, but secured some excellent ideas for future fire fighting.

The Oneida fire had burned beyond control of the local department, and outside help had been called for. The Seneca department answered the call for help. What happened can best be described by Chief Troughton, who tells the story as follows:

"The town has no water system and no special fire equipment so we could only fight the fire with bucket brigades. I suggested the use of cement, there being plenty on hand, as a means of checking the fire, but my idea being new I had to back it up with forceful orders. I had dry cement scattered over the adjacent piles of lumber which were in immediate danger of catching fire, and had this wetted down by the bucket brigade. I had cement mixed with water, making it quite thin, and had this liquid cement thrown on the lumber which was ablaze. The effects were prompt and pleasing, even astonishing. Over 5,000 feet of lumber were afire when we began the use of the cement, but the spread of the blaze was checked almost immediately. No more caught fire, and within an hour and a half the blaze was extinguished. I attribute the saving of about a third of the lumber in this yard to the use of cement.

"The dry cement, which was thrown upon the lumber piles and wetted down, rendered that lumber impervious to fire. The fire did not catch in any of the piles so treated. It almost entirely stopped the flying of sparks and tinder, thus greatly reducing the danger of spreading fire. It caked over the fire, smothering it and shutting out the air so that combustion could not take place, thus more quickly and effectively extinguishing it than anything else available."

Another interesting use to which cement was put in this fire was in the case of a large tank of oil—about 400 gallons—in the cellar of one of the buildings. This open tank was ablaze and canned goods dropping into it were exploding and throwing burning oil about the building. Chief Troughton stated that several sacks of dry cement were thrown into the tank and the danger eliminated.

"Everyone was astonished by the results of the use of the cement," said Chief Troughton. "I believe that we could have made even more effective use of the cement had we had some means of forcibly throwing the liquid cement on the fire. We had great difficulty along this line, and were severely handicapped by lack of facilities, but I feel that by using the cement we stopped a fire which would otherwise have entirely destroyed the lumberyard and possibly other property."

✣

## Redwood Starred in Movie

WITHIN the next few months many thousands of Americans will make a film journey to northern California to see with their own eyes just how the famous Humboldt County Redwood is logged in the virgin forest, transported to Scotia, sawed in the mills, seasoned and finally sent forth into man's service. They will be guests of the Pacific Lumber Company at a showing of "Scotia, the Home of the Redwood," in moving pictures. The Pacific Lumber Company industry has just been filmed "from tree to train."

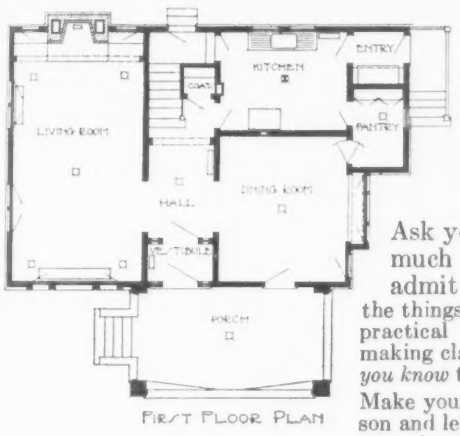
During January, special representatives of the Pacific Lum-

# Send To-day — for Free Trial Lesson in Plan Reading

If you are ambitious to place yourself where you will earn more because you will be worth more, get this free lesson. It will show you how by studying in your spare time under the direction of the Chicago "Tech" experts, you can learn to handle big building jobs.

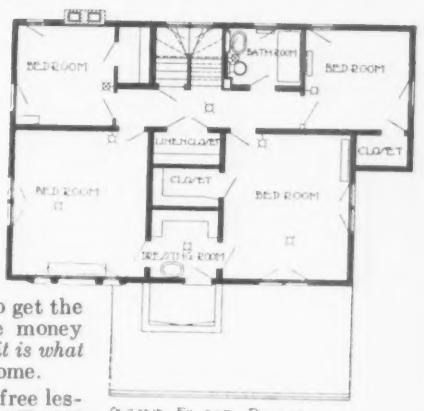
The man who knows how to work best with his head is the man who gets the big pay or makes the most out of his business. Don't be a "half-way" man — **be an expert.** Find out about the Chicago "Tech" way of training. No money to send for this lesson and full information. Just the coupon. Mail it today.

# Can You Plan and Figure Costs—



FIRST FLOOR PLAN

## Make Estimates and Direct Building Construction?



SECOND FLOOR PLAN

Ask yourself this question — "How much do I know? If you have to admit to yourself that you can't do the things which pay best, now is your time to get the practical training which will put you in the money making class. Hard work alone won't do it—*it is what you know* that determines the size of your income.

Make your start now. At least send for the free lesson and let us tell you all about the Chicago "Tech" way of training men in their spare time.

# *Complete Courses for Men in Building Trades*

Chicago "Tech" Courses are planned for practical men who want to become better informed on subjects which apply to their daily work. No time is given to "fancy" studies or useless theories.

### Some of the Subjects We Teach

**Plan Reading.** How to read a building plan. How to read dimensions. How to read detail drawings. How to lay out work from plans. How to stake out buildings. Practice in reading complete blue print plans from basement to roof, etc. etc. Many complete sets of blue print plans and specifications are furnished to the student.

**Estimating.** Figuring amount and cost of material. Estimating time and labor. How to figure carpenter work such as stairs, roofing, rafters, etc. Millwork, window and door frames, mouldings, cornices, etc. All about the steel square. Lathing and plastering. Excavating. Brick, stone, and concrete work. Fireproofing. Glazing. Plumbing. Heating. Wiring, etc., etc.

**Superintending.** Methods of work on all classes of buildings. Uses and preparation of all kinds of material. Hiring and handling men.

**Also Special Courses in Architectural Drafting for Carpenters and Builders and in Plumbing and Heating and Ventilating—*all taught by practical men.***

# Send the Coupon

Only the coupon and you get this free trial lesson. Not a penny to send, no promises to make, no obligation on you at all. We invite every ambitious man in the building trades—every man who wants to get more of the practical knowledge which makes a larger earning power to send for this lesson. It is absolutely free and with it we send complete information about our home study courses—and show how any man can get this training at small cost and on easy terms. Mark X in coupon and mail it today.

## Chicago Technical College

236 Chicago "Tech" Building Chicago, Illinois

**CHICAGO TECHNICAL COLLEGE,**
**236 Chicago "Tech" Building, Chicago**

Without obligation upon me please send Free Trial Lesson and information on the course I have marked X below.

☐ **Plan Reading and Estimating**
☐ **Architectural Drafting**

Name .....

Address .....

Post Office ..... State .....

Occupation .....

ber Company took copies of the film on tours to all parts of the country. It will be exhibited at lumber dealers' conventions, before architects' societies, at Home Building Expositions, at gatherings of specialty manufacturers—before any group which is desirous of becoming better informed regarding the lumber that comes from the monarchs of all forests. Other copies of the picture will be sent abroad in order that inhabitants of other lands, too, may visit California and know Redwood. Japan is already viewing this picture.

It will be possible for specialty manufacturers, who use Redwood as a raw material, to obtain copies of the picture, or as many scenes as they wish, for use in their individual advertising campaigns.

"Scotia, the Home of Redwood," produced for the Pacific Lumber Company of Illinois, under the supervision of Austin L. Black, advertising manager, shows a panorama view of the town of Scotia, center of the Pacific Lumber Company activities. Then by "gasoline scooter" the traveler explores along one of the railroad lines which the company has built into the mountains. Transferring to an incline cable railroad, the traveler ascends a mile and a quarter into the clouds and comes to one of the logging camps. A giant tree is felled, the bark pried off with crowbars, the logs transported by high line across a wide valley and loaded onto cars for the trip down the incline and on to Scotia.

In the mills the audience sees the huge logs sawed into lumber and the lumber sawed into widths and lengths. The audience takes a monorail trip thru the air lines and storage yards where millions of feet of Redwood lumber are being seasoned. Then comes a visit to the Leaver Patented Process kilns which supplement curing by the air lines, enabling the company to meet market demands for long lengths and to give to short lengths that particular curing which will best fit them for each specialty manufacturing use.

In the planing mill the audience sees Redwood stock prepared to specification for various specialty uses—for caskets, incubators, tanks, ice cream cabinets, cigar boxes, etc. For the house builder the planing mill provides bevel siding, window and door frames, porch columns, balusters, etc., and shingles.

The picture ends with a visit to Fields Landing, Humboldt Bay, California, where are seen the Pacific Lumber Company's tide-water yards and wharves for foreign shipping.

✣

## Building Conference Plans Standard Construction Contracts

STANDARIZATION of construction contracts, a goal towards which all far-sighted men in the industry have been looking for the last twenty years, seems destined to be achieved at last through the united efforts of a "conference" held in Washington, D. C., recently.

This conference was composed of delegates appointed by eight national societies representing the engineers, architects and contractors of the United States, and the definte plan adopted was one which would ultimately produce a standard form of contract "agreement" which would be acceptable in all sections of the country and in all phases of this huge industry which now ranks second only to agriculture in national magnitude.

Every contractor and owner who has wrestled with the intricacies of a contract or worried over the exact yet doubtful meaning of its many complicated and legalized phrases will approve this first attempt to frame in simple English an equitable and universal document.

A survey of the situation made by Brigadier-General R. C. Marshall, Jr., chief of the Construction Division, U. S. Army, during the world war, disclosed the fact that today there are

PLAN FOR A Gurney REFRIGERATOR

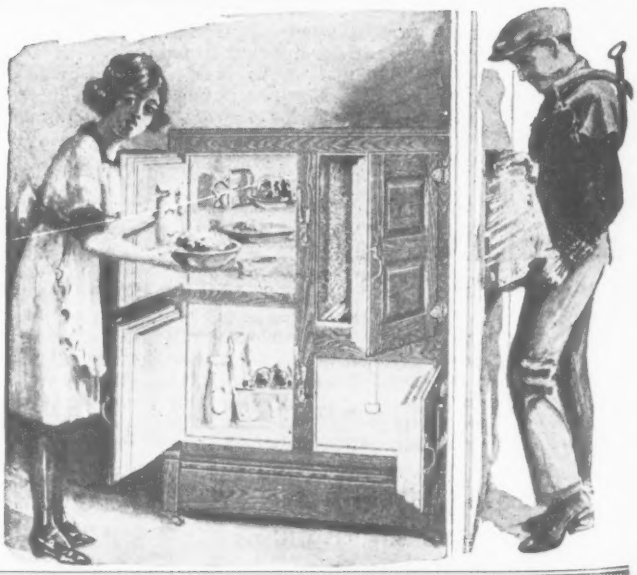
Every Home Needs This Convenience

THE GURNEY installed with outside icing eliminates the mess caused by dripping ice and muddy feet of the ice man. The outside icing feature allows the ice to be put into the refrigerator from the back porch without entering the house.

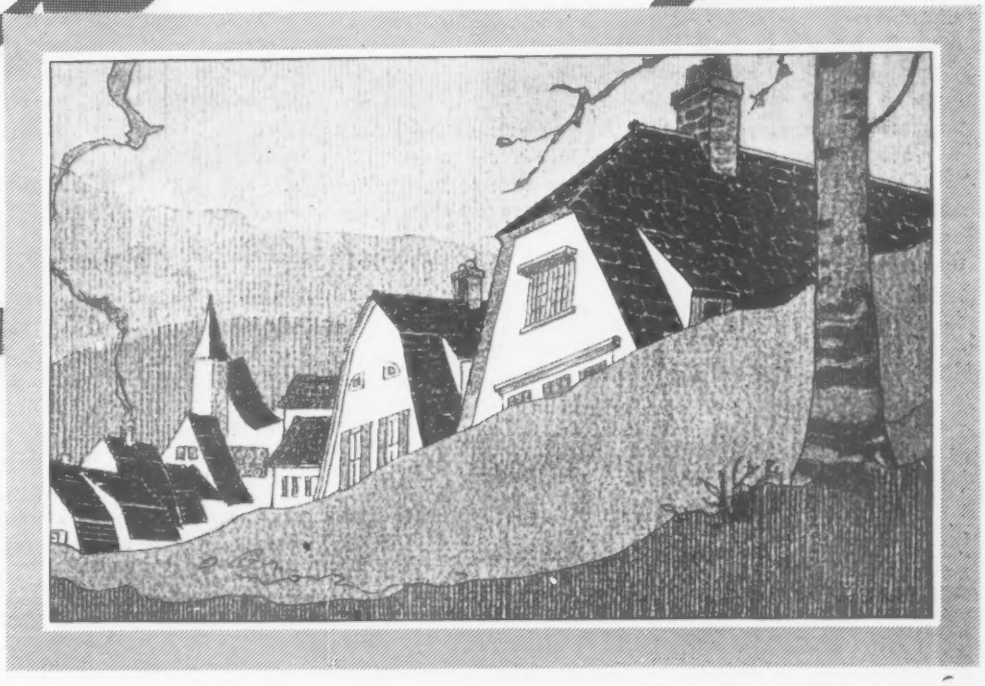
Nearly all styles of Gurney refrigerators can be supplied with end or rear icing doors.

*Write for catalogue illustrating our complete line*

GURNEY REFRIGERATOR COMPANY
FOND DU LAC WISCONSIN
*Permanent Chicago Exhibit, 308 N. Michigan Avenue*



# Carey



## *They never curl—*
## *and Carpenters rely on them*

THE Carpenter, contractor, or builder who applies Carey Asfaltslate Shingles knows that they will give satisfaction and lead to future business for him.

Experience and careful investigation have proved to those in the trade and to home owners in every part of the country that Carey Asfaltslate Shingles *will* and *do* stay flat. They lie just as flat and are as attractive after many years of service as in the beginning. Every year brings in new records of service which Carey Asfaltslate Shingles are giving, and every year adds many more satisfied customers to those who have learned the meaning of Carey quality.

Write for Samples of Carey Standard Shingles (Underwriters' Standard) and Carey Asfaltslate Shingles (that are 10% to 20% above Underwriters' Standard and the shingles that never curl).

*"A Roof for Every Building"*

**THE PHILIP CAREY COMPANY**

510-530 Wayne Avenue, Lockland - - Cincinnati, Ohio

## Other Carey Building Materials

CAREY Built-Up Roofings are built on the job with alternate layers of sheet roofing and coatings of Manco Asphalt. Permanent roofing for any kind of surface.

Carey Board is a Wallboard that is waterproofed internally with asphalt and externally with silicate. It takes the place of lath and plaster.

Carey Fibre Coating contains asphalt and asbestos fibre. It renews old roofs.

in common use throughout the construction industry over 200 different forms of contract.

Expert engineers at the headquarters of the Associated General Contractors of America in Washington were then assigned to the task of analyzing these 200 different forms in order to discover whether the variety of "jobs" involved required any such variety of forms.

After many months of painstaking comparison and research W. P. Christie, in charge of this work as research engineer for the Associated General Contractors, reported that the differences were chiefly superficial differences of words and phrasing rather than differences of meaning or stipulations, and that at least two-thirds of all the provisions contained in each of the 200 documents were common to all documents and therefore could be included *in one standard contract form,* if rewritten in simple univevrsal style.

In this way it would be quite possible to draft a Standard Contract which would cover all cases of construction work, no matter in what field, and the only alteration that would ever need to be made to it would be in selecting the standard form of "General Conditions" which covered the type of job concerned. Experts believed that a half dozen such forms would cover the main subdivisions involved in the construction industry.

The aim of the conference in beginning work on this difficult task is to achieve the following advantages for the entire construction industry and all its affiliations:

(1) Less expenditure and legal service.
(2) Less duplication of work in the professions.
(3) Elimination of disputes.
(4) Better safeguard for owners and increased public confidence.
(5) An improved standard of construction service thruout the country.

Secretary Hoover, in addressing the Conference, said, in part:

"This Conference is to consider whether something can be done to standardize * * * or generally improve the whole basis of contract forms used in the construction industry.

"I believe there is a great field there, not only in protection to the public but in the general improvement of ethics in the industry itself.

"I know that at the time I was in engineering work this whole variation and specification of the contract basis for construction work of all kinds was an *outstanding sore* and I have been in hopes that it was possible to do something.

"It all comes in line with the things many of us are much concerned with, and that is fundamentally the elimination of waste, lost motion, improvement of business practices thruout the whole of the United States."

✣

## 1921 Building Gains

TOTAL expenditure for building throughout the country for the year 1921 was $1,595,165,192, a gain of 14.9 per cent over the record year of 1920, according to Bradstreet's. Reports from 150 cities showed that $120,994,839 had been expended for building in December, a gain of 112.8 per cent over December, 1920.

✣

THE American Concrete Institute will hold its annual convention at Cleveland, O., on Feb. 13-16. Some of the subjects to be discussed at length are Concrete Roads, Houses, Concrete Products Manufacture, Practical Field Problems, Engineering Design and Inspection.

SAGER METAL WEATHER STRIPS

Give your dollar a chance to make good. Get the best that money will buy. The market for the best products that are made consists of the people who HAVE TRIED THE OTHER KIND and who know that it pays to pay the right price first, at the time of purchase, instead of paying much more during the period of use.

You will make a big hit with your customers if you will PROTECT the value of their dollars by sticking to the value of QUALITY. Dollars and quality help the world to make good. Dollars invested in something cheap are beaten before they've had their chance. The greatest bargain that the world ever offered to humanity is QUALITY.

SAGER WEATHER STRIP is the QUALITY strip.

*Some good territory open for live agents*

SAGER LOCK COMPANY
NORTH CHICAGO (Established 1880) ILLINOIS

# Rite-way

## GARMENT FIXTURES

**saved $168 on this plan**

Why waste extensive building space for old-fashioned dark, inaccessible closets? Build your houses the space-saving way made possible by the use of Rite-Way Garment Fixtures. In the plan above, the builder cut 6 feet off the length of the house without changing the size of a single room. He saved $168.00 in material and labor.

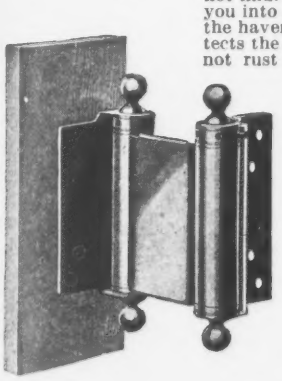
## You Can Save Your Customer Money On His New Home

by installing the Rite-Way space saving closet fixtures. They save hundreds of dollars in the small home, thousands in large apartments.

By using Rite-Way Garment Fixtures you not only save on building cost by reducing closet space but you actually increase closet-capacity. More clothes can be kept in better condition in the Rite-Way closet.

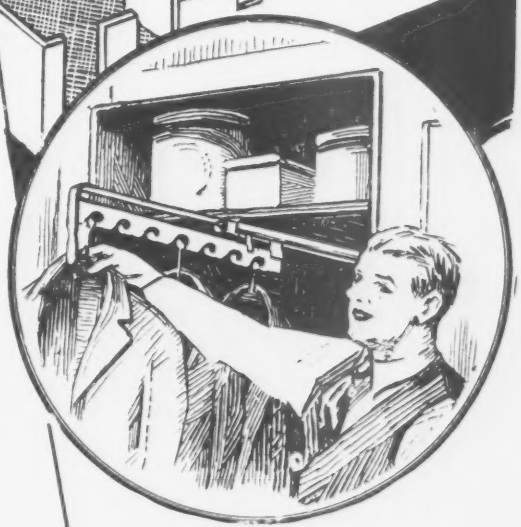
No more groping about in the dark for clothes that you cannot find. Like magic, a touch brings the wardrobe out before you into the light and air. Dark closets are dust collectors, the haven of destroying moths. The Rite-Way System protects the clothes. The carrier works on fiber rollers that will not rust or stick. It carries a heavy weight and pulls out easily without noise.

Put the Rite-Way Garment Fixtures in old homes that you are remodeling.



## Here's another money saver

Nu-Jamb save at least $1.50 on each application because no hanging strip is required. They fasten directly to the jamb giving the door far more solid support and can be more easily and quickly applied. Lawson hinges are adaptable to all standard constructions.



***Rite-Way Closets provide twice the convenience with half the space.***

# LAWSON

**Manufacturing Company**

**230 W. Superior Street** **Chicago**

# NEWS OF THE FIELD

## S.C. Johnson Company Opens English Factory

S. C. JOHNSON & SON, Racine, Wis., recently opened a new factory in West Drayton, Middlesex, England, the firm name of which is S. C. Johnson & Son, Ltd. Mr. A. B. Carey, who has been with the domestic firm for nearly 20 years, is resident manager of the new firm. This is a private company, registered Nov. 14, 1921. The capital is £75,000 ($375,000). The entire line of Johnson's artistic wood finishes will hereafter be manufactured in West Drayton.

The English factory is completely equipped and the sales force thoroly organized. Seven salesmen are already covering the British Isles.

✣

## New Rural Engineering Course at Virginia College

A DEPARTMENT of Agricultural Engineering has recently been organized at the Virginia Polytechnic Institute (State Agricultural College), and a four-year course in agricultural engineering will be started in September, 1922.

This department is interested in getting catalogues and other descriptive matter from all companies manufacturing farm equipment.

✣

## New V-W Chicago Office

THE V-W Ventilator Co., Cincinnati, Ohio, has opened a branch office at 714 Reaper Block, Chicago, with Messrs. Abt & Powers in charge. They will handle the complete line of ventilators for windows, sash bars, door panels, transoms, cars and moving vehicles.

MRS. HAZEL DELL BROWN has been engaged by the Armstrong Cork Company to take charge of the Bureau of Interior Decoration of the Linoleum Department. Mrs. Brown was formerly Supervisor of Art in the public schools of Indianapolis.

✣

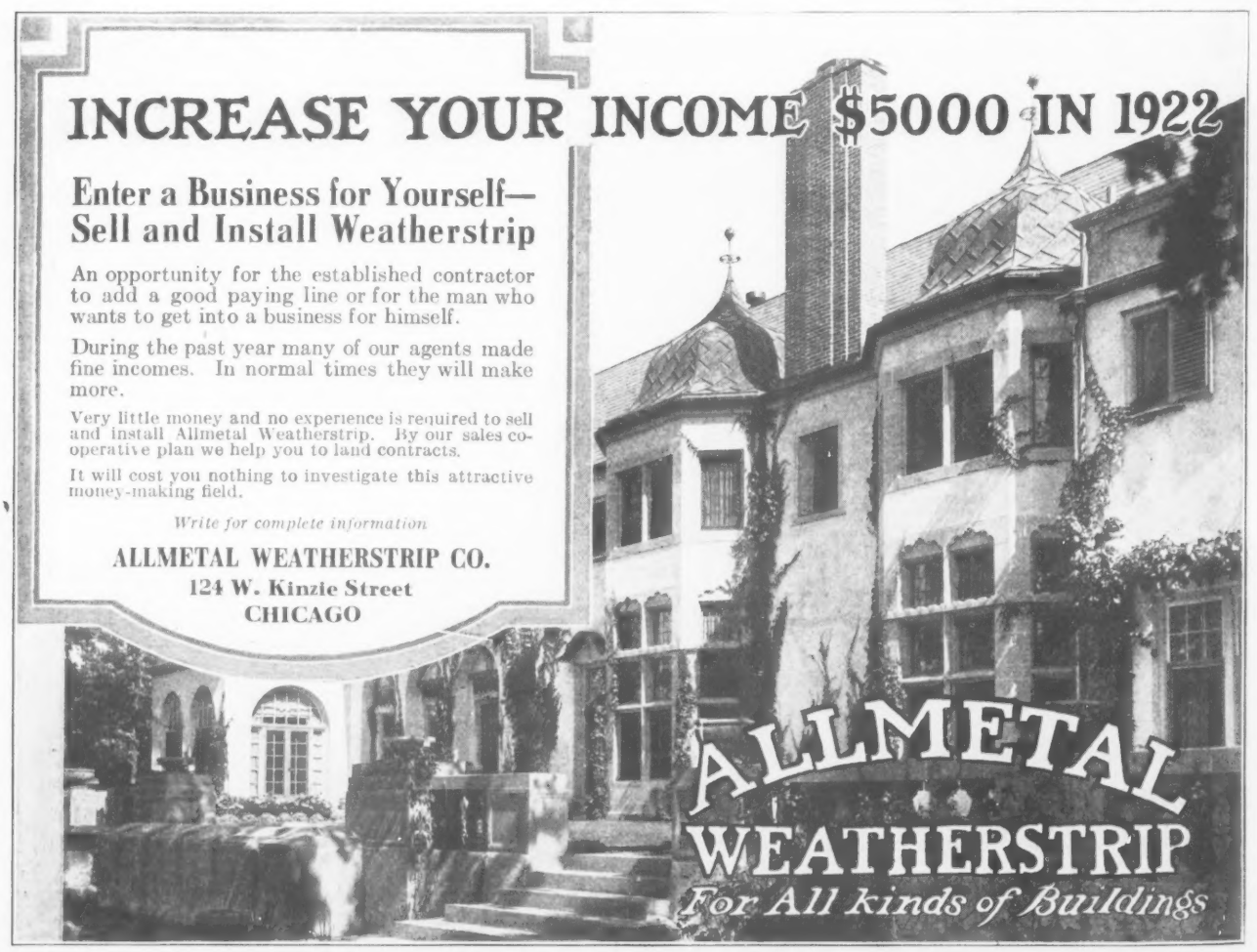
## Marsh-Capron Re-Establishes Own Sales Organization

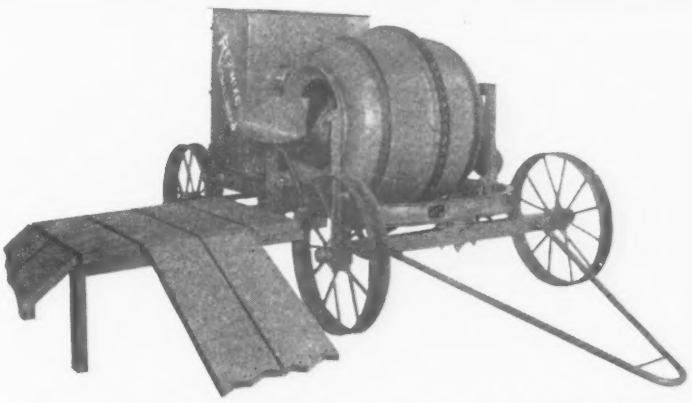
THE MARSH-CAPRON COMPANY, Chicago, manufacturers of the Marsh-Capron line of construction equipment, are again taking up the marketing of their products with the trade. Robert C. Weller, former general sales manager of the Lakewood Engineering Company, has been elected president, and will have entire direction of the newly organized company. Mr. Weller comes to the Marsh-Capron Company with extensive experience in the construction field, in both production and sales.

Altho the Marsh-Capron Company have been manufacturing and selling mixers since 1905, for the past two years their output has been sold thru an outside sales organization. A desire to meet their customers face-to-face, to help in the selection of equipment better suited to the individual job, and to give better service on the delivery of equipment and repair parts, led to their decision to enter the selling field again.

H. M. Capron, founder of the Marsh-Capron Company, and A. D. Mosby, engineer in charge of design and production, retain an active interest in the new organization.

In addition to the Marsh-Capron family of concrete mixers, the Marsh-Capron Company will market mortar mixers, wheelbarrows, concrete carts, grouters, sidewalk forms, curb or curb and gutter forms, wall forms, bar benders and cutters, floor finishing machines, clamshell buckets, etc., thru their factory and general distributing warehouses and agencies at Chicago, Philadelphia, Pittsburgh and elsewhere.



INCREASE YOUR INCOME $5000 IN 1922
Enter a Business for Yourself—
Sell and Install Weatherstrip
An opportunity for the established contractor to add a good paying line or for the man who wants to get into a business for himself.
During the past year many of our agents made fine incomes. In normal times they will make more.
Very little money and no experience is required to sell and install Allmetal Weatherstrip. By our sales co-operative plan we help you to land contracts.
It will cost you nothing to investigate this attractive money-making field.
Write for complete information
ALLMETAL WEATHERSTRIP CO.
124 W. Kinzie Street
CHICAGO
ALLMETAL
WEATHERSTRIP
For All kinds of Buildings



Its large, easy rolling wheels make the Rex 4-S the most portable half bag mixer on the market

## SEE HOW BIG THE WHEELS ARE!

The ease and speed with which a concrete mixer is moved on the job depends on the size of the wheels.

Rex 4-S and 7-S Mixers are fitted with **the largest road wheels used on building mixers their size.** These wheels are 28 inches in diameter and from 4 to 6 inches wide. They are spaced to standard road gauge.

Its labor-saving portability is just one of the reasons why the Rex is the best building mixer you can buy. Our catalog describes other Rex advantages. Send for a copy.

# REX MIXERS

CHAIN BELT COMPANY, MILWAUKEE

**Branch Offices and Representatives in Principal Cities in the United States and Abroad**

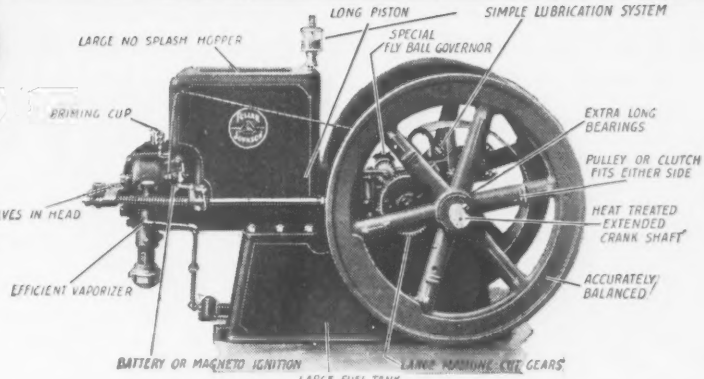
---

## USE FULLER & JOHNSON EASY TO START ENGINES

**Model "N"**

***Easy to Start*** ***Uniform Speed***
***Surplus Power*** ***Built for Long Life***

*Built in Sizes*
*1½, 3, 5, 7, 9, and 12 H. P.*
*Other Models up to 25 H. P.*
*Stationary or Portable*




*All Adjustable Parts are Easily Accessible and Once Adjusted can be Locked in Position*

# Here's the Engine for the Contractor

Study the special features of the FULLER & JOHNSON Model "N" Gasoline Engine, as shown on this chart, and see for yourself why this engine is the proper one for operating contractors' construction machinery, such as concrete mixers, saw rigs, conveyors, pumps or hoists.

It is the engine that will stand up under hard, continuous use month after month and year after year. Simple in design; easy to start; perfectly balanced; big surplus over rated horsepower, uniform speed under all loads.

That's why leading contractors are now specifying the FULLER & JOHNSON Model "N." It will pay you to know more about this remarkable engine. Write today for descriptive catalog of Model "N."

**Established 1840 FULLER & JOHNSON MFG. CO. 10 Rector Street Madison Wis., U. S. A.**

*EASY TO START*

New Drum Mixer Now Being Manufactured by Austin Co.

## Austin Announces New Mixers

THE Austin Machinery Corporation, Chicago, have just announced another addition to their line of contractors' equipment in the form of a complete line of popular-priced drum mixers.

Heretofore the Austin mixers have been of the cube design, the mixing being accomplished without the aid of blades or paddles, simply by throwing the batch from plane to plane with a force varying according to the speed of revolution.

The new mixers will be supplied in all standard sizes from one-half bag to two yards, and the paver in sizes from one-half yard to two yards.

## Advantages of Standardization

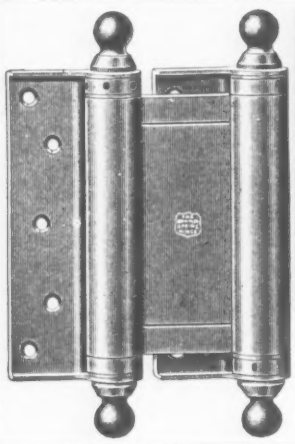
THERE is plenty of room for standardization in the building industry, both in the actual process of construction and in the manufacture of material. A movement fostered by Secretary Hoover to standardize building codes has received quite an impetus and will eventually eliminate some of the obstacles which now interfere with building work in many communities. Standardized materials will eliminate waste and effect an economy that will go far toward stimulating building.

For standardization in any industry stabilizes production and employment, since it allows the manufacturer to accumulate stock during periods of slack orders which he cannot safely do with an unstandardized product.

It reduces selling; enables buyer and seller to speak the same language and promotes fairness in competition.

It lowers unit costs to the public by making mass production possible and decreases litigation and other factors tending to disorganize industry, the burden of all which ultimately falls upon the public. It helps to eliminate practices which are merely the result of accident or tradition and which impede development.

Any movement that will promote more cordial cooperation among the industries in the building field will go a long way in reducing the cost of the process and improving the finished product.

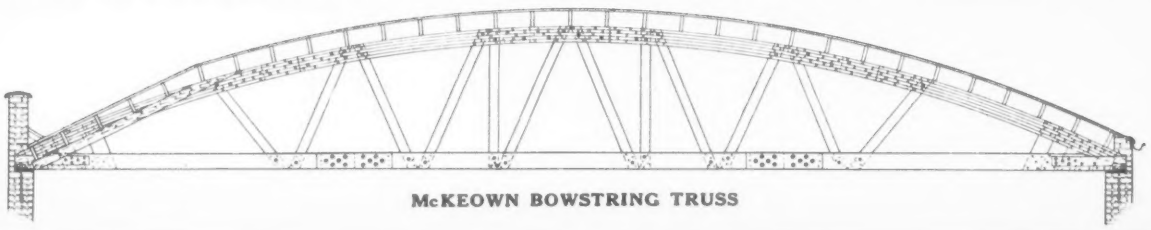
BOMMER
SPRING HINGES

Standard for over 45 years, and steadily improved, retaining superiority over all others. In universal demand. Easiest to apply.

BOMMER SPRING HINGE COMPANY MANUFACTURERS, BROOKLYN, N. Y.

WRITE McKEOWN BROS. COMPANY
112 WEST ADAMS STREET - - CHICAGO

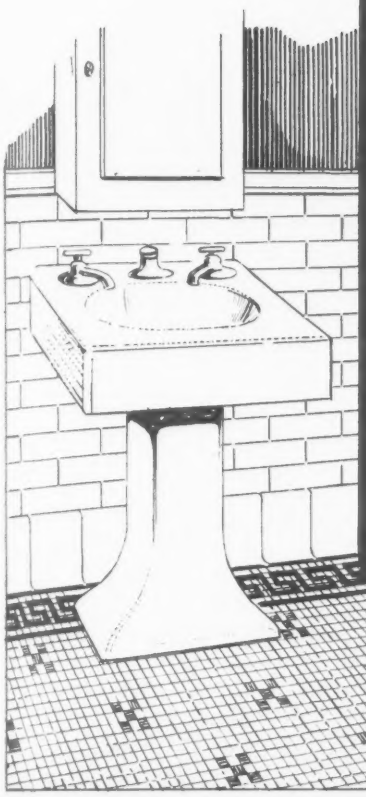
THE NEXT TIME YOU ARE IN THE MARKET FOR THEY CAN FURNISH YOU WOOD TRUSSES ERECTED IN PLACE OR IN KNOCKDOWN FORM F. O. B. THE JOB. ROOF TRUSSES



McKEOWN BOWSTRING TRUSS

# TILES & MOSAICS

**We can give you rock bottom prices on all kinds of tiles and mosaics for every purpose.**



### RICH RED QUARRY TILE

The large Red Tile, so popular for Sun Porches, Terraces, Pergolas, Fire Places, etc. Made from shale and burned to vitrification, they are dense and impervious, and do not absorb stains or dirt. Our quarry tile are guaranteed to be free from defect. They are made in rich, natural reds; also in ivory and grey.

### WHITE GLAZED WALL TILE

The ideal covering for bathroom walls. Once set it never needs repair or upkeep.

Mosaics for floors can be had in a great variety of designs. Some of these designs are shown in our pamphlet which we will send on request.

We can supply any kind of tile.

Write for prices.

Write for
**FREE BOOKLET**
"How to Set Tile"

WALL TILE
FLOOR TILE

**CHAS. F. LORENZEN & CO.**
521-523 W. Monroe Street
CHICAGO

# UNION METAL COLUMNS

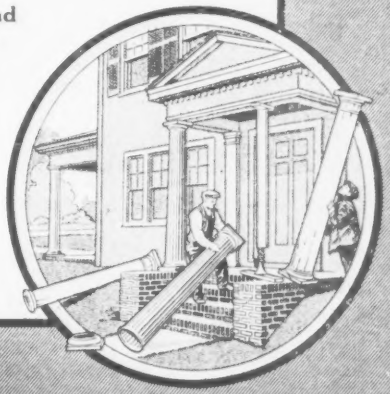
## *for Porches*

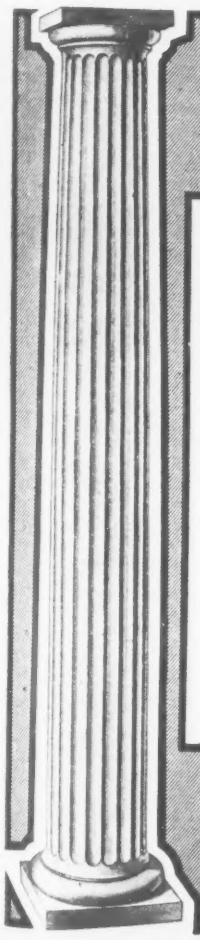
Entrances to thousands of homes and public buildings are made permanently beautiful by the use of these classical, fluted columns. No splitting, no rotting, reasonable cost, sizes 5 feet to 32 feet high.

## *for Remodeling*

Union Metal Columns are widely used for rebuilding porches and replacing split and rotted wood columns. Home owners always welcome them as a relief from wood column troubles.

**Send for catalog and attractive agency proposition**





Design No. 240
Plain Doric

**The UNION METAL MANUFACTURING Co.**
Canton Ohio

## Conferences on Electrical Slate Held in Washington

WIDESPREAD interest is being shown in the work of standardization which the Structural Service Bureau of Philadelphia is now doing for the slate industry of Pennsylvania thru the Structural Slate Company, an organization representing the majority of the slate quarries in this region. A specification for slate suitable for electrical uses is being developed from a series of tests upon the physical, chemical and electrical properties of slate, performed at Lehigh University. Conferences are being called to discuss the results of the tests and the minimum requirements which should be stated within the specification. This specification is being submitted to the American Society for Testing Materials, the American Institute of Electrical Engineers, and the Underwriters' Laboratories, in the hope that it will eventually be developed into a national standard specification to be used by the slate and electrical industries and all others interested in the use of this material.

The result of these conferences will eventually prove to be of inestimable value to the producers of building construction and related materials in the United States.

✣

## The Calendar Crop

THE beginning of each new year brings to the office of the AMERICAN BUILDER a new crop of calendars. They are sure of a glad welcome because of their many artistic and novel features. Listed below are some that have been received, with a short description of each:

**Radford Publications**—Twelve-sheet, four-color offset, bird's-eye panorama patented calendar, showing a representative street thru town and country along which are built the most modern homes, stores, theaters, and farm buildings, barns and garages. This calendar is distributed thru the best lumber dealer in each community, and he is also supplied with twenty sheets of blue prints showing in detail the construction of the 46 buildings illustrated.

**Lehigh Portland Cement Co., Allentown, Pa.**—Large, single sheet calendar with big-figure pad in alternating colors. Each sheet on calendar pad contains map of the United States showing location of various Lehigh mills, also small sections showing preceding and succeeding months.

**Sandusky Cement Co., Cleveland, O.**—Single sheet with calendar pad. Attractive drawing in colors of beautiful home of brick and Medusa cement stucco with trade name Medusa across top. Small decorative detail sketches are inserted in lower margins.

**J. & J. Scott, Ltd., New York, N. Y.**—Beautiful single sheet calendar in colors with large copy of Arthur's painting of Sakaka-wea, historical Indian guide in canoeing scene. Calendar pad on lower part.

**F. E. Myers & Bro., Ashland, O.**—A long wall calendar similar to the style so familiar to the friends of this company, illustrating Myers' line of pumps, hay unloading tools, door hangers, etc. This type of calendar has been distributed by the company for thirty years to thousands of customers and dealers. This year an attractive picture of a pretty girl drinking water from a Myers' pump is shown at the top with the familiar slogan, "Take your hat off to the Myers."

**Curtis Door and Sash Co., Chicago, Ill.**—Twelve-sheet, two-color calendar with Curtis trademark across top and one month on each sheet. Preceding and succeeding months are also shown in miniature on each sheet.

Made on the job
Granite Stone
Stucco
Water Proof

**One of the largest exclusive Pebble Dash contractors in the country offers you specifications to make and apply Pebble Dash stucco exactly as they have successfully applied it for 15 years.**

Made of Portland Cement and other materials cheaply obtained locally at a cost of 45c per sack.

With our method of mixing and applying no other contractors can compete with you. Any ordinary workman can do the finest of Pebble Dash stucco.

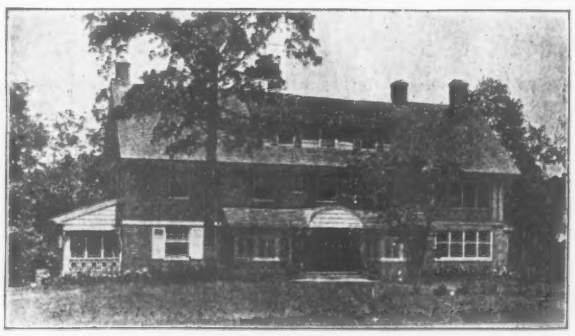
*Send for further information and sample*

**E. W. Holmes Pebble Dash Company**
**Princeton, Illinois**

**The American Builder**

**Circulation of this issue, 45,000 copies.**

Publishes More Pages of Advertising
Has the Largest Number of Advertisers
AND
Many Thou ands More Subscribers
Than All Other Building Papers
Combined.



*Stained with Cabot's Creosote Stains*
*B. V. White, Architect, New York*

**Save Half Your Painting Bill**

You can actually save *more than* half the cost on both material and labor, and get better results in beauty of coloring, wearing qualities and wood preservation, by using

**Cabot's Creosote Stains**

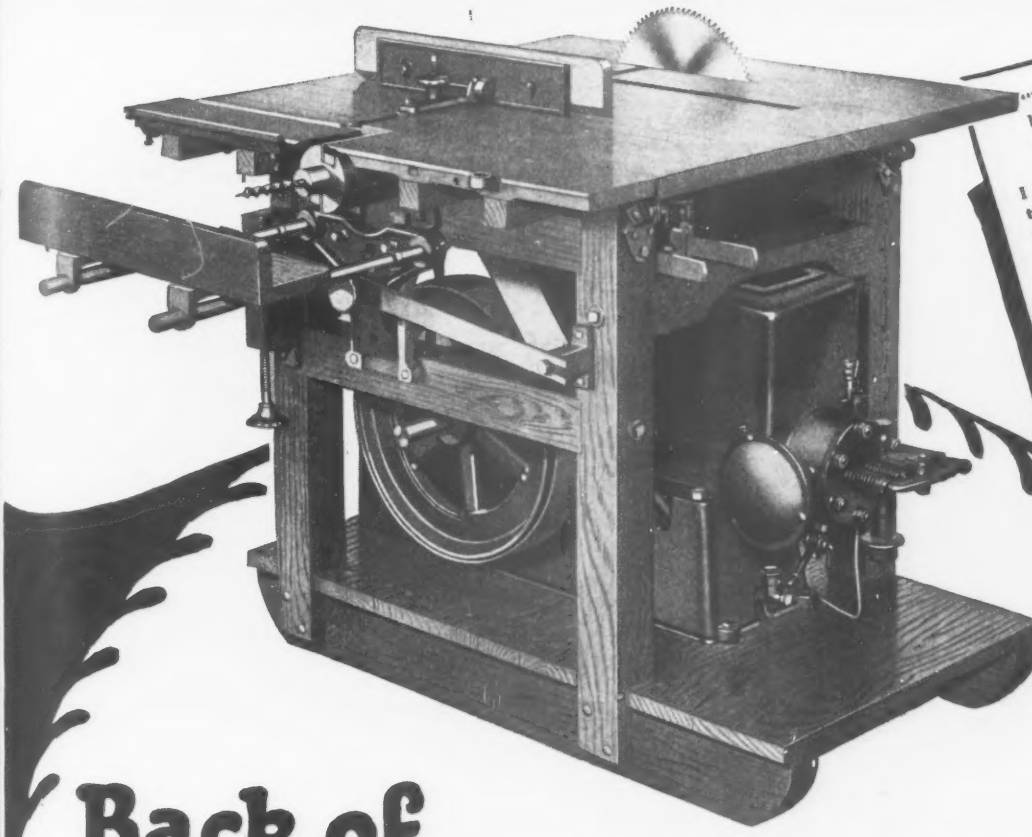
instead of paint, on shingles, siding and all similar outside woodwork. The colors are rich and handsome, not "painty." They wear as long as the best paint and wear better, and they are made of creosote, which penetrates the wood and thoroughly preserves it

**Cabot's Quilt**

A genuine house-warmer. It's a cushion of dead-air spaces and is 30 times warmer than building paper. Quilt will pay for itself in a short time in saving coal, to say nothing of making the house comfortable for all time. Also a complete sound-deadener.

*You can get Cabot's Stains and Quilt all over the country. Send for samples and names of nearest agents.*

**SAMUEL CABOT, Inc., Mfg. Chemists**
**BOSTON, MASS.**
342 Madison Ave., New York 24 W. Kinzie St., Chicago
Cabot's Conservo Wood Preservative, Stucco Stains, Brick Stains, Damp-Proofing



"I recently bid on a bungalow here, and it being a parsonage for the M. E. Church, I figured very close for them. After estimating the various parts of the work I cut the bill $50 and charged it up to my Eveready, knowing it would save me that. I got the contract and made a profit, too."
WALTER B. MOORE
Cavour, So. Dakota

# Back of Many a Successful Bid

ANY building that requires much sawing can be erected at a lower cost by a contractor who owns an Oshkosh Eveready Saw Rig. This handy, portable outfit performs twelve important woodworking operations, eliminating hand sawing almost entirely. It does the work of at least two skilled carpenters on every job with a worthwhile saving in time and labor expense.

Cross Cuts
Rip Saws
Band Saws
Rabbets
Miters
Joints
Bores
Tenons
Sands
Grinds
Bevels
Dadoes

Aside from ordinary sawing jobs, the Eveready is specially fitted for doing outside trim and inside finish, stair work, window and door frames, panel work, rabbeting jambs, making cupboard doors and medicine cabinets. Makes a profit for you in winter or on bad days, turning out frames, sash and trim in your work shop. An Eveready is economical—costs but a few cents a day for power. Many contractors who have used an Eveready for six or seven years have spent less than a dollar for repairs.

*Let us send you our "Book of Evidence". It tells you what Eveready users think of this husky saw rig*

**OSHKOSH MFG. CO.**
100 Amber Street
OSHKOSH, WISCONSIN

# OSHKOSH EVEREADY SAW RIG

The American Builder is published monthly at 1827 Prairie Ave., Chicago, Illinois, by the American Carpenter & Builder Co. Entered as second class matter, July 1st, 1905, at the Post Office, at Chicago, Illinois, under the act of Congress of March 3, 1873 Subscription price $2.00 a year. Volume 32, No. 6

# *The Speed Marvel*

**It does such an abundance of work so economically it has been the means by which hundreds of contractors have saved money.**

## Hutchinson Lightning Woodworker

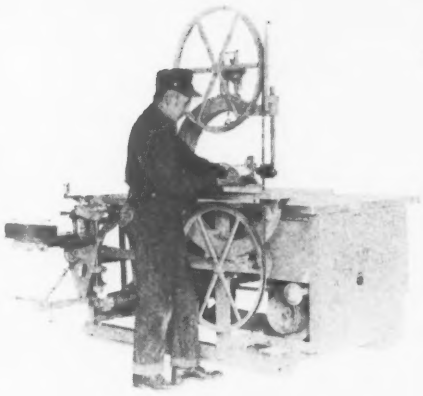
This machine, buzzing away on your jobs, turns out as much cut lumber in an hour as two men do in a day. It is a complete portable planing mill. It is not just a "saw table." It is a swing saw. It is a parallel saw. It is a big, sturdy miter box that will cut and dado at any angle. It cross cuts, rips, planes, miters, joins, bores, rabbets, grooves, sands and grinds.

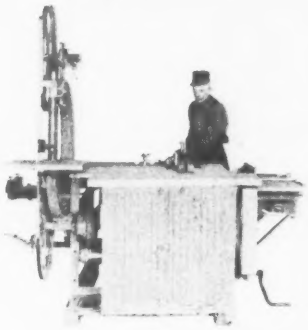
While doing this versatile work it is turning time into money and saved man power. You pay for the Speed Marvel whether you buy or not. You will be interested to know about its accomplishments for others and how it will cut costs and prove a wonderful investment for you.

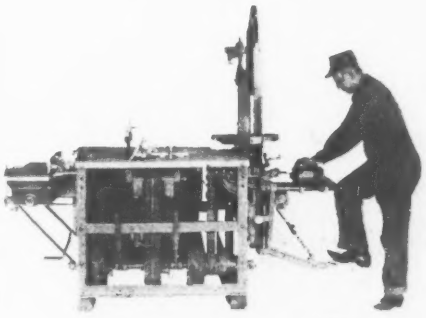
**Write for catalog**

## HUTCHINSON MANUFACTURING CO., Inc.

**601 Lafayette St., Norristown, Pa.**







# C.H.&E.

## Portable Saw Rig No. 16

## A NEW MODEL

This No. 16 Portable Saw Rig is the very latest and newest triumph in a combination portable woodworker. It is an outfit all self-contained, ready to operate anywhere, either out on the job or in the shop. It is a combination machine with rip and cross cut saws, right hand operated 12-inch jointer, hollow-chisel mortising and boring attachment, 27-inch band saw, sander, emery wheel and dado head.

Each attachment is individually controlled by clutch. The frame construction of the table is made up of a hot riveted frame, with a steel plate table that has the edges turned down to stiffen the plate. The ripping capacity of this mill is very fast. This is due to the fact that a four cylinder gasoline engine is mounted in this Rig and runs with absolutely no vibration.

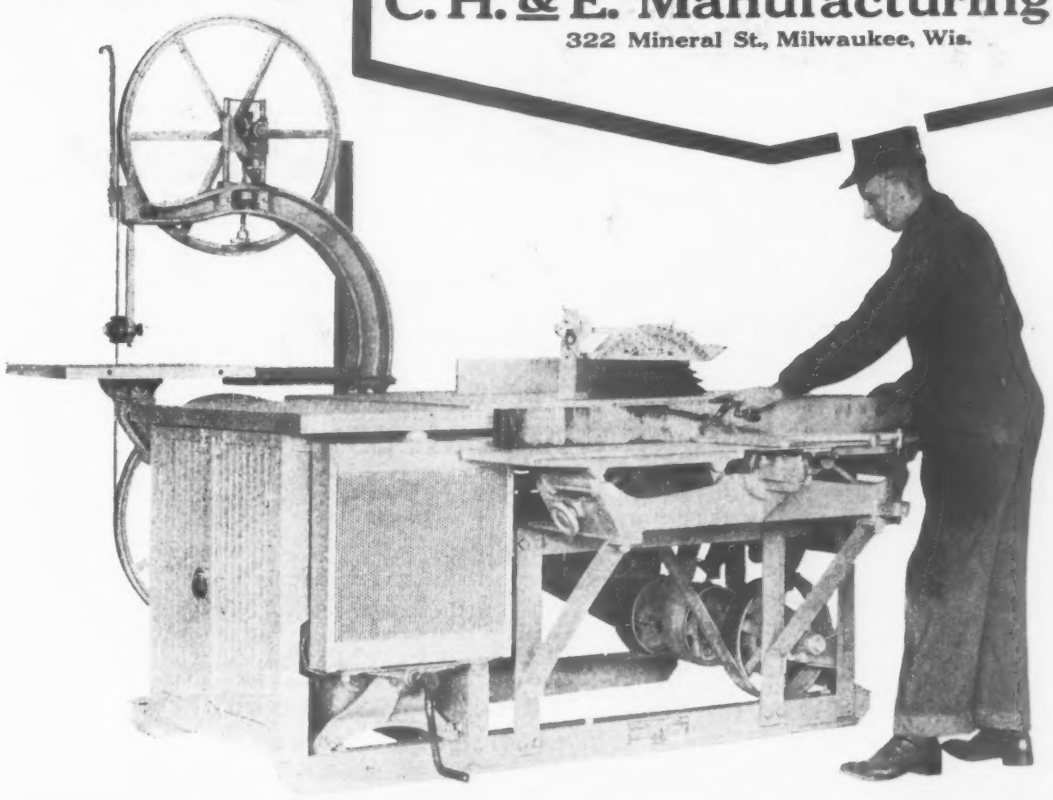
**This No. 16 Outfit is an improvement over our No. 6 Combination Woodworker, 800 of which are now successfully being operated in the shop and on the job.**

Four views of this new Outfit are being shown here, and four men can operate this machine at one time without interfering with each other. It has a ripping capacity of 6-inch lumber, more power than is needed.

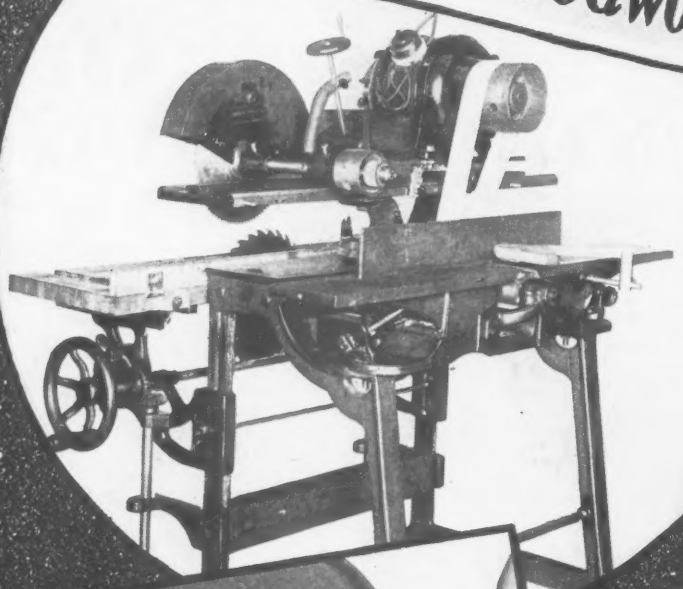
Write for our new Portable Saw Rig Bulletin No. 1 describing our six sizes of saw tables. Also our Bulletin No. 2—Power Pumps, Bulletin No. 3—Hoists, Elevator, Mortar Mixers, Bulletin No. 4—Tractors for road and industrial work.

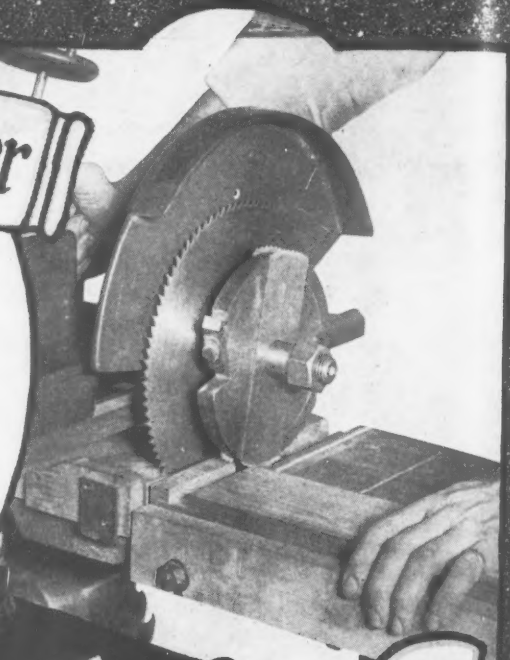
**C. H. & E. Manufacturing Co.**

**322 Mineral St., Milwaukee, Wis.**



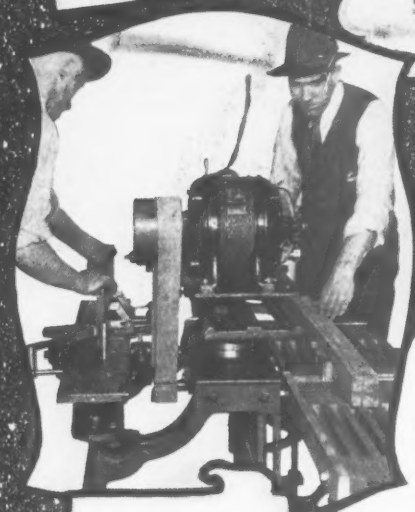
# The Master Woodworker



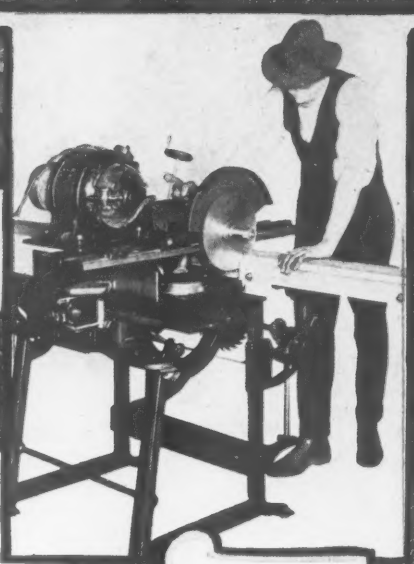


Cutting and Routing Side Door Jamb in One Operation

Routs 16-foot Stairway in 20 Minutes



Boring



## BACK TO PRE-WAR PRICES

Underslung rip saw, Overhead cross cut that works like a swing saw. Bores, mitres, dadoes, rabbets, planes, moulds, rips and joints on the bevel, makes jackrafters, fire cuts, houses stair strings, and every other cut necessary in building.

**Will rip 4 inches thick, without over-load. No power wasted on countershaft.**

A portable universal woodworker driven by special electric motors, developing 3½ H. P. Can be run from any lamp socket on ordinary house circuit. Catalogue on request.

**Designed to be taken right on the job**

Ripping and Jointing

Cross Cutting

THE WOODWORKER MANUFACTURING CO.
Cor. Bruch and Congress Sts. DETROIT, MICHIGAN

# LOOK!

Here is a New Universal Woodworker at a price which beats everything else on the market.

# FAMOUS No. 30 JUNIOR

The FAMOUS line of woodworking machinery has always been the first to incorporate into itself the needs of the trade.

Hence the introduction of the New FAMOUS No. 30 Junior Universal Woodworker. It is built for the man who does not need a larger, heavier machine.

But in building the FAMOUS No. 30 Junior no particle of FAMOUS quality has been omitted. It acknowledges no superior but its own larger relatives of the FAMOUS line.

*Be the first in your community to secure the advantages and profits which this machine will bring you!*

Write for Descriptive Bulletin

The No. 30 Junior carries 27 inch Band Saw, 12 inch Jointer, Reversible Shaper, a Rip and Cut-off Saw Table of ample size and capacity and a boring attachment.

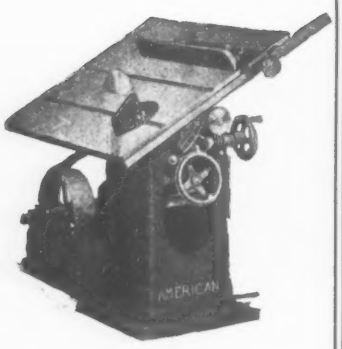
Attachments can be added to make it capable of doing every form of work ordinarily required in the modern shop.

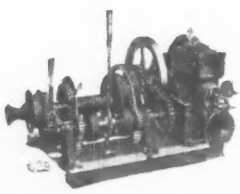
Every unit is self-contained—built right into the main frame. It is free from vibration.

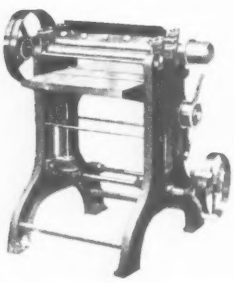
The purchase price is within the reach of every user of woodworking machinery, and the EARNING POWER OF THIS MACHINE CANNOT BE EQUALLED.

## THE SIDNEY MACHINE TOOL CO.

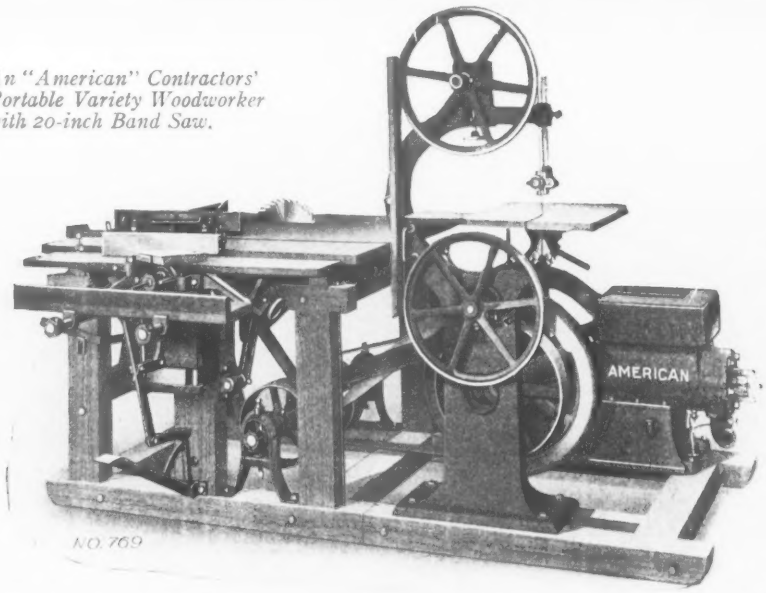
SIDNEY, OHIO, U. S. A.







*An "American" Contractors' Portable Variety Woodworker with 20-inch Band Saw.*




# Take Your Shop Right on the Job

DO what a great many other carpenters and builders are doing—take an American Contractors' Portable Variety Woodworker on the job and have the equal of a complete mill right at your elbow.

Those vexing delays and the costs of running back to the shop to do this or that are eliminated when there's an "American" on the job. Each one of its fourteen machines (all in one unit) are high grade woodworking machines—the equal of any single machine. You will actually save money on every building contract that has an "American" on the job.

*Write for Catalog No. 77 that illustrates and describes our full line of woodworking machinery*

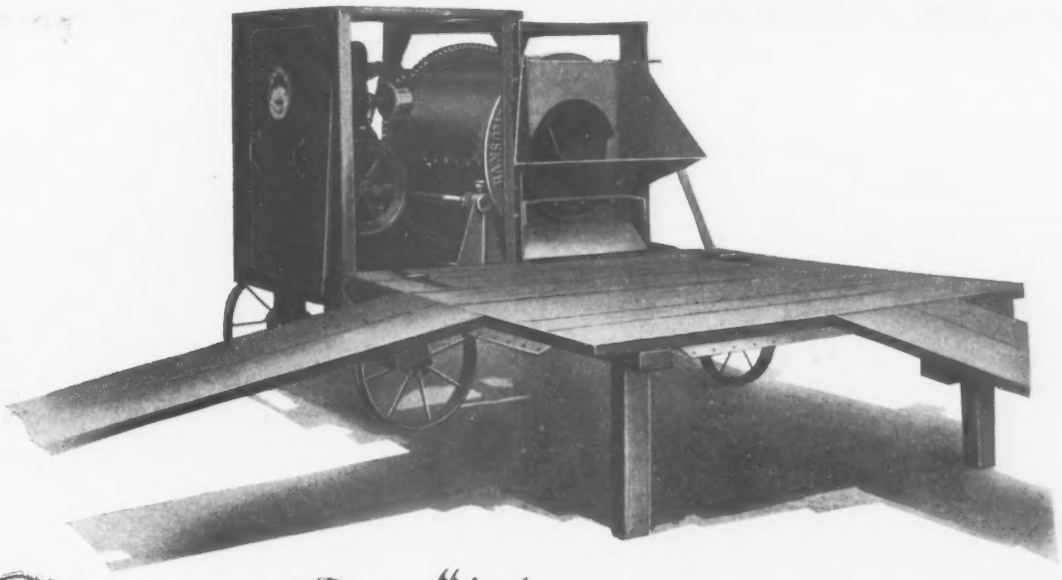
**American Saw Mill Machinery Co.**

Hackettstown, N. J.
60 Main St.

New York City
1360 Hudson Terminal Bldg.

# "AMERICAN"

## Woodworking Machinery



# "That machine keeps my boys hustling—"

"There's no messing around now when the job calls for a little concrete work. Since I canned the shovel-and-hoe method and got this new Ransome 4-S Bantam concrete jobs are about the fastest thing we do.

"Another thing, my brick-layers don't get any chance to loaf around waiting for the mortar mixer to catch up with a batch of mortar. The Ransome Bantam keeps 'em hustling. It certainly does shoot out the mortar. And mighty good mix, too. As for operating troubles, I can't say much because I haven't had any. The Ransome Bantam keeps going.

The mechanical reasons why the Ransome Bantam "shoots out mighty good mix" in either concrete or mortar, and "keeps going" are told in Bulletin No. 103. Write for copy.

# Ransome Bantam Type CONCRETE MIXERS

## RANSOME CONCRETE MACHINERY CO.

**1764 Second Street, Dunellen, N. J.**

*Manufacturers of Mixers, Pavers, Pneumatic Mixers, Chuting Plants, Hoist Buckets, Bins, Cars, Carts, Etc.*

# Get Your Share of this Spring's Business

Jaeger
A MIX A MINUTE

## The Dependable Speed of the Jaeger Will Help You Land Many a Job This Spring—and Put It Through—MOST PROFITABLY

Jaeger 4-L

THERE'S going to be plenty of jobs this spring to figure on—depend on that. And whether you get **your** share of this business gets right down to one important factor—**the speed of your mixer.**

Think of what it would mean to you in bidding on any job to own a mixer with which you could figure on A MIX A MINUTE! That's what you get in the Jaeger. This dependable speed lands the job and **puts it through at the biggest profit for you.**

The Jaeger tilting drum completes a batch in a half the time it takes with any non-tilting machine. This speed, combined with perfect mix and lowest operating cost, makes every one of the 18 Jaeger outfits a 100% mixer. Our new catalog and price list will give you the complete story. **The new Jaeger price list contains many reductions of vital interest to you. Use the coupon today.**

THE JAEGER MACHINE CO.
318 Dublin Ave., COLUMBUS, OHIO

Jaeger 3-E

THE JAEGER MACHINE CO.
318 Dublin Ave., Columbus, Ohio

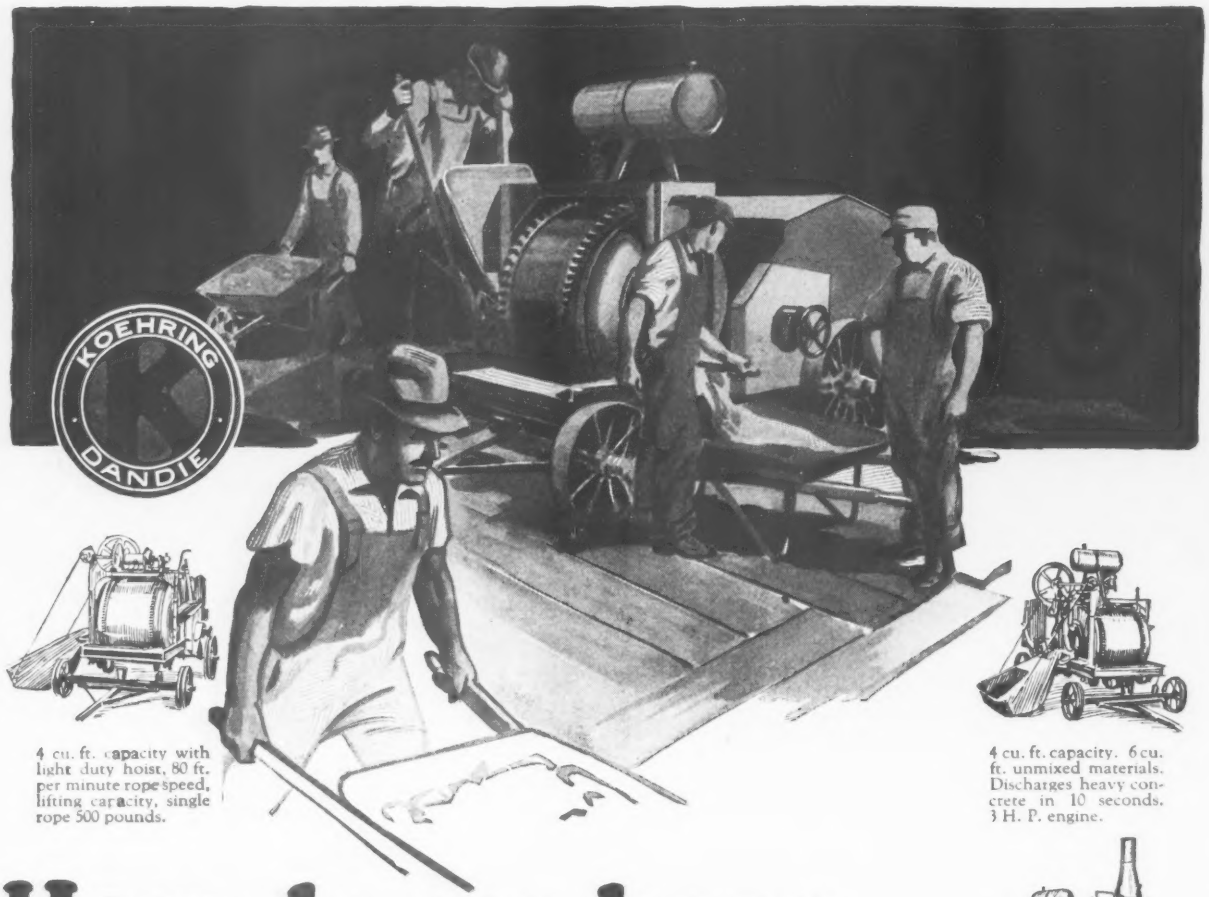
Gentlemen:—Please send me a copy of your catalog and new price list today.

Name.....

Address.....

.....

IT takes a mixer with *guts* to stand the gaff of heavy-duty operation day in and day out, week after week, job after job.
Maybe that's one of the reasons why Oshkosh Concrete Mixers are so popular with *contractors who have tried them all* and swear by "Oshkosh."
*There is an Oshkosh for every mixing job. Capacities, 5 to 28 cubic feet.*
Oshkosh Manufacturing Co.
99 So. Main St., Oshkosh, Wis.
New York Branch, 154 West 38th St.
NEW YORK, N. Y.
OSHKOSH CONCRETE MIXERS

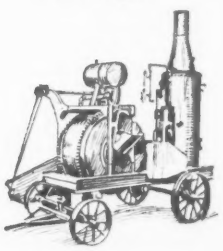



4 cu. ft. capacity with light duty hoist, 80 ft. per minute rope speed, lifting capacity, single rope 500 pounds.



4 cu. ft. capacity. 6 cu. ft. unmixed materials. Discharges heavy concrete in 10 seconds. 3 H. P. engine.

# How do we keep the price down?



7 cu. ft. capacity. 4 H. P. engine. 5 H. P. boiler.

Not by taking it out of the construction of the mixer! No! The Dandie sets a new standard for light mixers, both in speed of operation, and in long service life. Yet it sells within the price range for light mixers. Big volume production, standardization in every part, and labor saving machinery only possible with the largest mixer manufacturer, keeps down the price.

## KOEHRING DANDIE MIXER

A light, easily portable mixer for footings, culverts, foundations, etc. Mixes concrete or mortar. As splendidly engineered as the big Koehring Paving Mixers. Great strength without excess weight! Double drum gear drive. Universal joint bearings. The Koehring heavy duty drum roller construction! Discharge controlled from either side. Extra liberal simple power. Genuinely, a trouble-proof mixer that stands up to all you can give it. Write for catalog.

### *Dandie Capacities*

4 cu. ft. mixed concrete gasoline. 7 cu. ft. mixed concrete steam and gasoline.

May be equipped with low charging platform, power charging skip and light duty hoist.

### *Send Back Coupon*

The Dandie is not the cheapest mixer you can buy, but the sturdiest, strongest construction which makes it the remarkable value in the light mixer field. Send back the coupon.

KOEHRING COMPANY
MILWAUKEE
WISCONSIN

KOEHRING COMPANY
MILWAUKEE

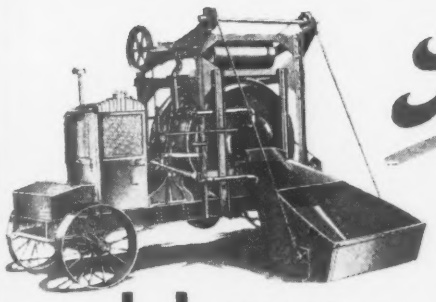
Please send me Dandie catalog **D-1**, and advise me where I can see a Dandie Mixer. also send me information on equipment marked with "X".

[ ] Bar Benders [ ] Bar Cutters

Name _____

Address _____

# Knickerbocker
## A COMPLETE LINE

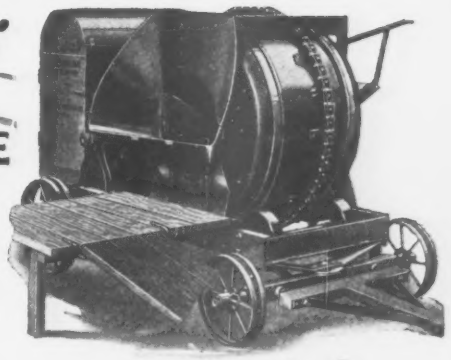


Sizes 21 and 14 cu. ft. mixed material—four cylinder truck and tractor type gasoline motor.

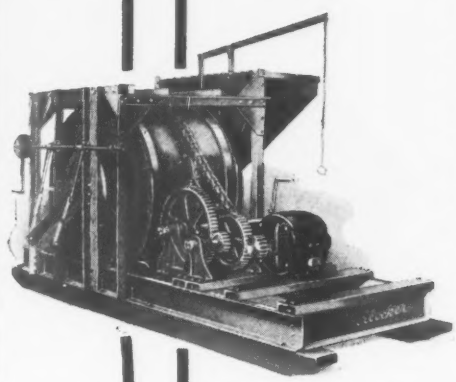
THERE is a Knickerbocker Machine with the proper operating and construction features, weight, capacity and price to supply every need.

Knickerbocker Products have been on the market for thirty-nine years. During these years they have been tested, proven and accepted by the best able to judge critics on earth —their users.

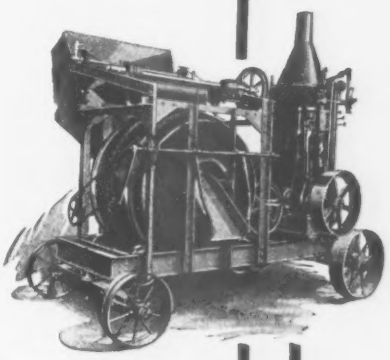
The firms who sell them have the facilities for and reputation of providing the service you have the right to demand and expect in order to make your business profitable.



Low Charger — Sizes 4, 5, 7 cu. ft. of mixed material.



Sizes 4, 5, 7, 14 and 21 cu. ft. mixed material—on skids with batch hopper and electric motor.



Sizes 21 and 14 cu. ft. mixed material — equipped with steam engine and boiler—power loader and measuring water tank.

## The Knickerbocker Co.

*(Established 1883)*

**525 Liberty Street, JACKSON, MICH.**

**U. S. A.**

**DISTRIBUTORS**

The C. H. Jones Co., Dooly Bldg., Salt Lake City Utah.
Hatcher, McKenna & Co., 3665 Market Street, St. Louis, Mo.
The Geo. W. Fife Equip. Co., Merchants Bank Bldg. Indianapolis, Ind.
Robt. Armstrong & Bro., Atlanta, Ga.
Clarksburg Supply & Equip. Co., 606 E. Pike Street. Clarksburg, W. Va.
Speers-Jevne, 8th Floor, Builders Exchange Building. Minneapolis, Minn.
Machinery Rental & Sales Co., 2918 Southwest Blvd. Kansas City, Mo.
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The Knickerbocker Co., 709 Arch St., Philadelphia, Pa.
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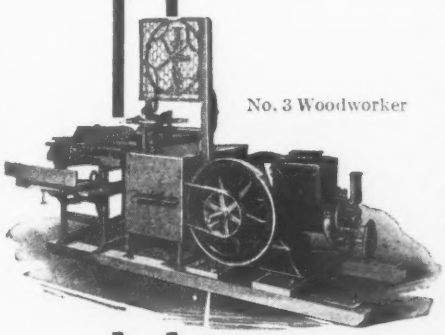
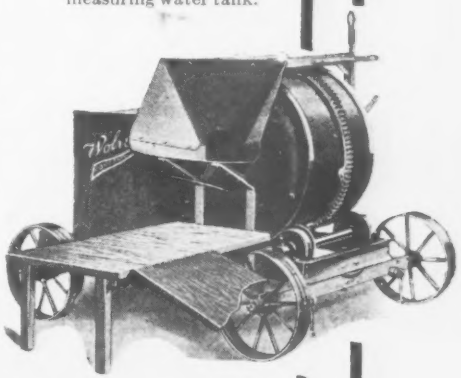
T. B. Rayl Co., 228 Congress St., Detroit, Mich.
Southern States Machinery Co., 409 Woodward Bldg., Birmingham, Ala.

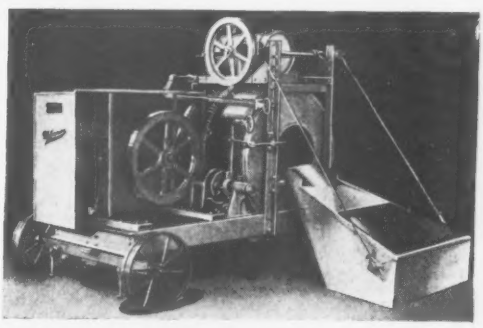


No. 3 Woodworker



Wolverine half-bag capacity low charger —equipped with 3 HP horizontal gasoline engine with magneto—engine housing—sells for **$325.00**, f. o. b. factory. May be equipped with batch hopper.

Our Wolverineone-bag capacity mixer equipped 5 HP horizontal gasoline engine with magneto — engine housing—power loader — measuring tank — sells for **$750.00** complete f. o. b. factory—low charger **$550.00.**



Combination Swing Cut-off and Ripping Machine

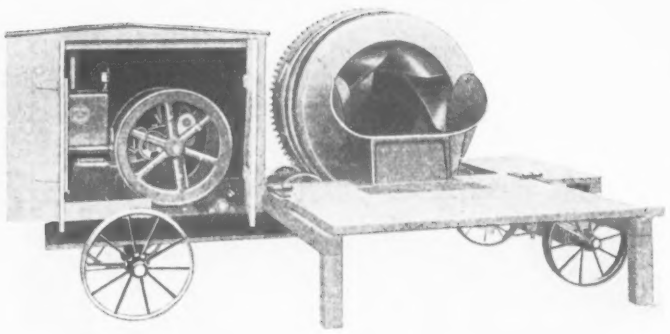
Mortar Mixers

*Send for our Catalog*

# CROPP

## LOW CHARGING MIXER

## Built for Speed!



The CROPP will keep your wheelbarrow gang busy. Look at the wide open drum—wider than a wheelbarrow—no delay nor spilled material in loading.

CHARGING—An upward lift of the wheelbarrow and the load is in the drum, where the blades with their 3-way action give a quick and thoro mix.

Discharging high and rapid—a wheelbarrow at each revolution. Discharge chute 30 inches above ground. No need to block up the machine.

Before you buy your equipment, write for the price and complete information on a Cropp low charging mixer.

**B. M. CROPP CO.**

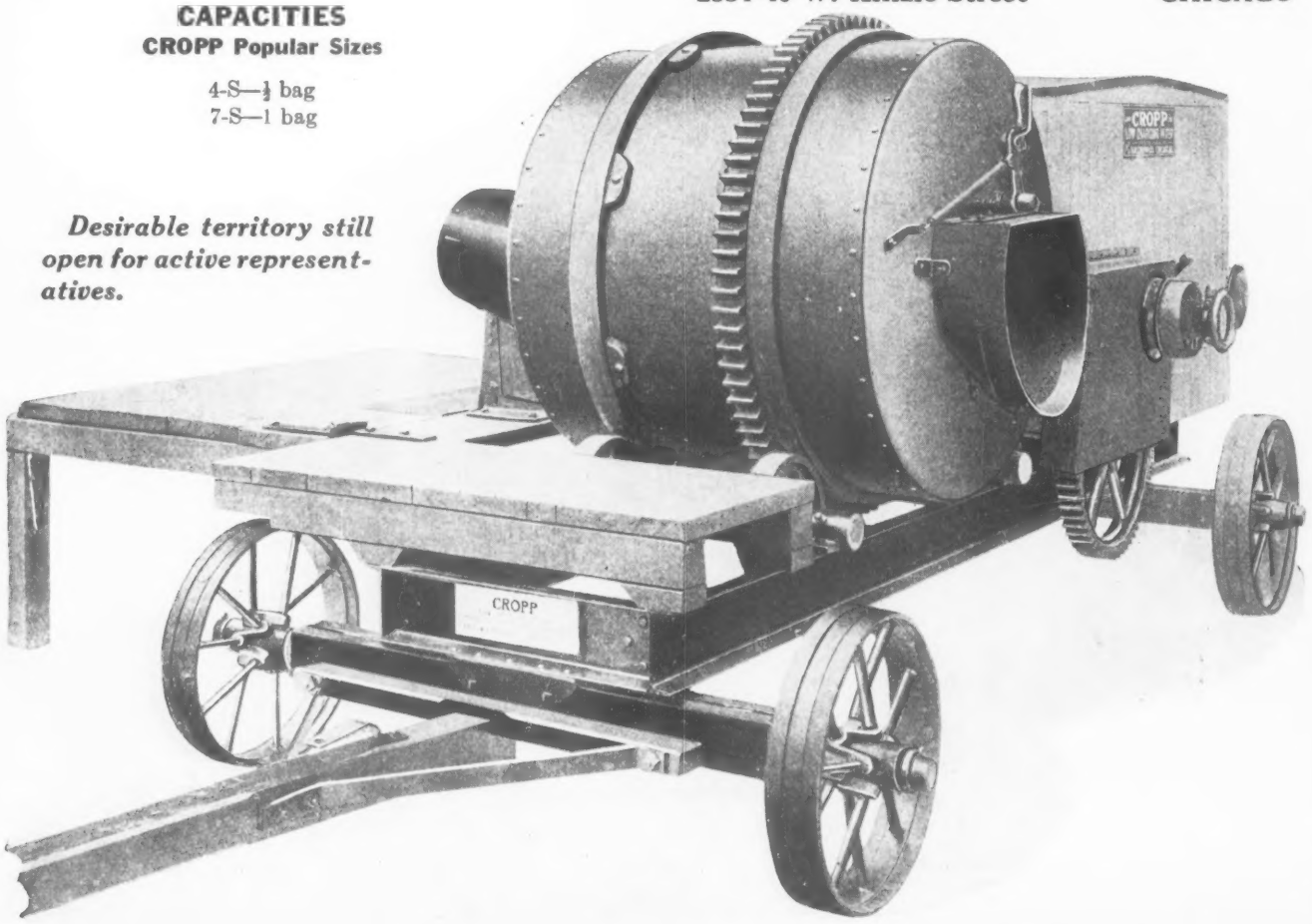
2334-40 W. Kinzie Street CHICAGO

**CAPACITIES**

**CROPP Popular Sizes**

4-S—½ bag
7-S—1 bag

***Desirable territory still open for active representatives.***



# DUNN SHOVEL MIXER

## PORTABLE

*For Mixing*

Concrete
Mortar
Plaster

## SCIENTIFIC SHOVELING

There's nothing new in the principle of the Dunn Shovel Mixer—mixing by shovels is as old as Adam. We have simply applied the principle in a scientific way, making it practical for the present day contractor.

There's nothing mysterious about the Dunn Shovel Mixer—it mixes right before your eyes. You see the shovels scooping the material up from the bottom and flopping it over a hundred times a minute. Simple, but positive mixing.

Watching the batch swirl around makes you think of so many plows at work, or some big spoons stirring, or a group of hoes dragging through it. Every conceivable mixing action is utilized.

The Dunn Shovel Mixer does its work much better than the revolving drum mixers you are familiar with—at least 20% stronger concrete is produced by actual test.

You will like the practical side of the Dunn Shovel Mixer. It charges with less effort than other mixers, and from any side. It discharges through the bottom, rapidly, directly into your wheelbarrow. You have a perfectly clean mixer after each batch is discharged.

The simplicity and few parts of a Dunn Shovel Mixer make for real strength. It will out-serve any other mixer.

Mounted on trucks, it makes a portable outfit which every contractor can use for mixing concrete, mortar or plaster.

**At the low price which a Dunn Shovel Mixer sells for, no contractor should content himself with an ordinary mixer. We have a way of selling these mixers which will appeal to you. Write for our proposition.**

## W. E. DUNN MANUFACTURING CO.

415 W. 23RD STREET

HOLLAND, MICHIGAN

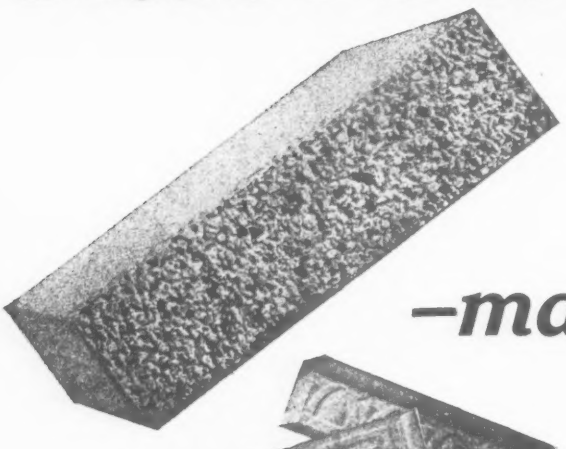
DUNN POWER EQUIPMENT TRIPLE UTILITY

DUNN STANDARDIZED TILE PLANTS
COMPLETELY EQUIPPED FOR MANUFACTURING
BUILDING, DRAIN AND SILO TILE.

DUNN TILE MACHINES
DUNN SHOVEL MIXERS FOR PRODUCTS PLANTS
DUNN CONCRETE, MORTAR AND PLASTER MIXERS.

DUNN POWER EQUIPMENT TRIPLE UTILITY

# Here's a message for You



Just now — when the whole country is clamoring for a low cost, fire-proof building material — is the time for you to start to

## —make Helm Brick

Ten billion brick are used annually in the United States and still they cry for more. No matter where you are, how small the village or large the city, there is always a demand for brick.

A Helm press will manufacture brick at a speed and economy of labor that will enable you to make an enormous profit per thousand. Helm brick sells on sight. The great pressure of this machine makes an unusually strong and uniform brick with perfectly true edges. Very easy to lay.

### Big Profits in Faced Brick

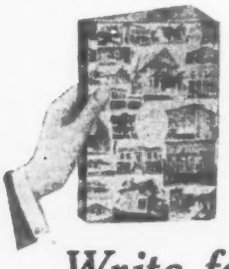
By our patented pressure system a facing of ¼ in. or thinner may be applied to either brick or block. Beautiful and enduring colors in red, brown, buff and many additional tints can be secured with formulas that will supply you.

This machine also makes **The Celebrated Two-piece Wall Blocks.**

For complete information, prices and specifications just write a postal asking for the FREE booklet.

**CAPACITY**
**15,000 brick daily, 1500 blocks**

**The Helm Brick Machine Co.**
**872 Mitchell Street**
**Cadillac, Michigan**



*Write for This Book*

**It tells you all about the Helm propositions**

# Introducing The Latest Ideal All-Automatic Building Tile Machine

An exceedingly strong and serviceable machine built on a flat cast iron base upon which all parts are mounted, which insures **perfect alignment.** And work is just as perfect, the construction providing every opportunity for the production of high-grade tile QUICK.

The machine is entirely and absolutely automatic. Only three men are required to operate it; one on mixer at back, and two to place empty pallets in the machine and carry away the full pallet. Three tile—5x8x12″—are made at one time, being delivered on a single wooden pallet.

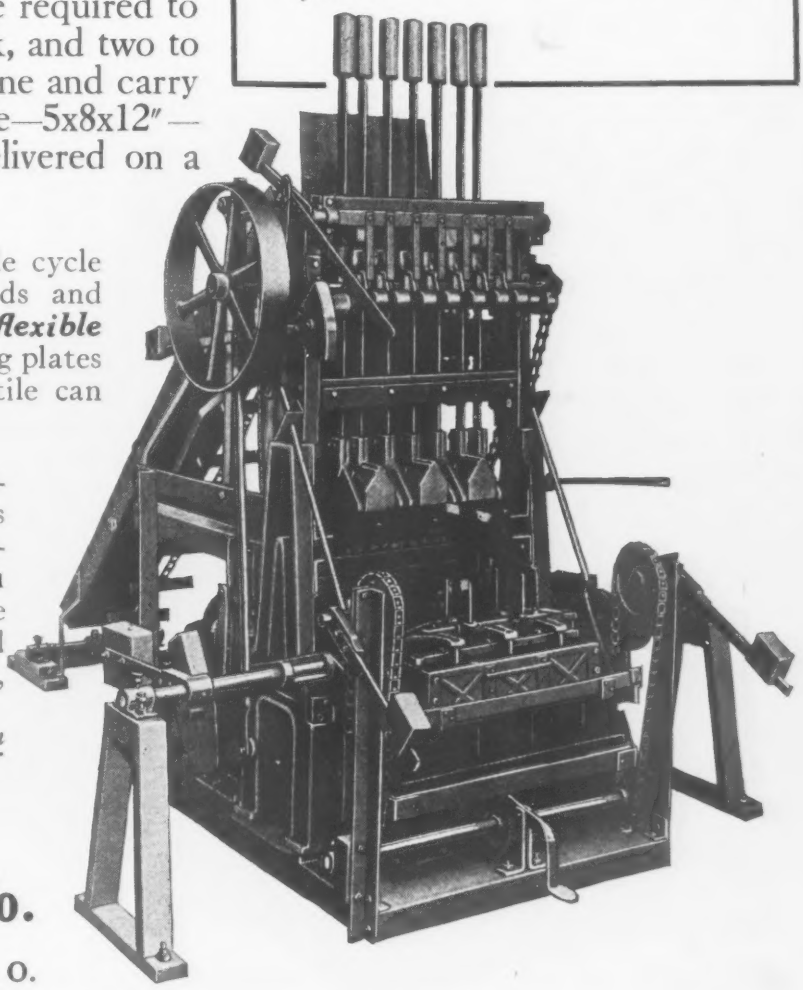
The machine is **speedy**—a single cycle taking between 20 and 25 seconds and turning out the three tile—and it is ***flexible*** —for by changing the three stripping plates and the cores, the dimensions of tile can be altered.

All in all, the new IDEAL All-Automatic Building Tile Machine is a wonder—and it is going to revolutionize the making of tile. Will **you** be the first in your community to use it, get the edge on competition and go over the top this Spring? If so,

*Write Us Today To Send More Information*

## *Features:*

*Absolutely automatic.*
*Elimination of cast iron stripper pallets.*
*Delivery of 3 tile on a single pallet.*
*No stopping or delay for off-bearing of tile.*
*Easy to change thickness of wall in tile.*
*Rate of machine's speed absolutely fixed.*



## The Ideal Concrete Machinery Co.

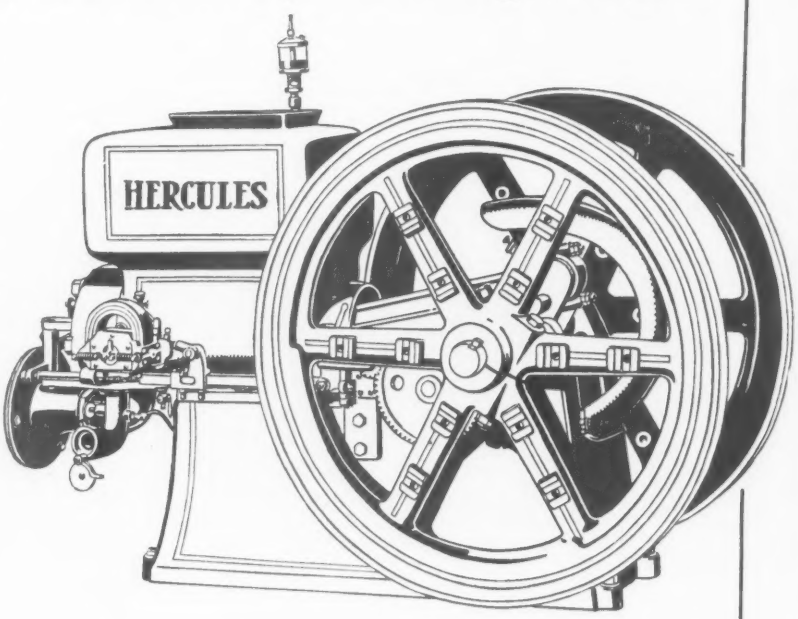
1308 Monmouth St. CINCINNATI, O.

# HERCULES

## Do You Want An Engine On Your Equipment That Will Last As Long As the Machine?

Then investigate the power plant before you buy and be as critical of its construction as you are the mixer, the pump, or the hoist.

Of course, if the engine is a HERCULES, no need to question its performance, for the 400,000 sold before you and the guarantee of an $8,000,000 corporation should remove all doubt as to the extended utility built into each one—




AND this extra life costs you LESS At First—because of our tremendous output, and from then on because of rugged construction, correct machining and a surplus of horse-power in each size.

AND of what value to you are our Hundred of Service Stations?

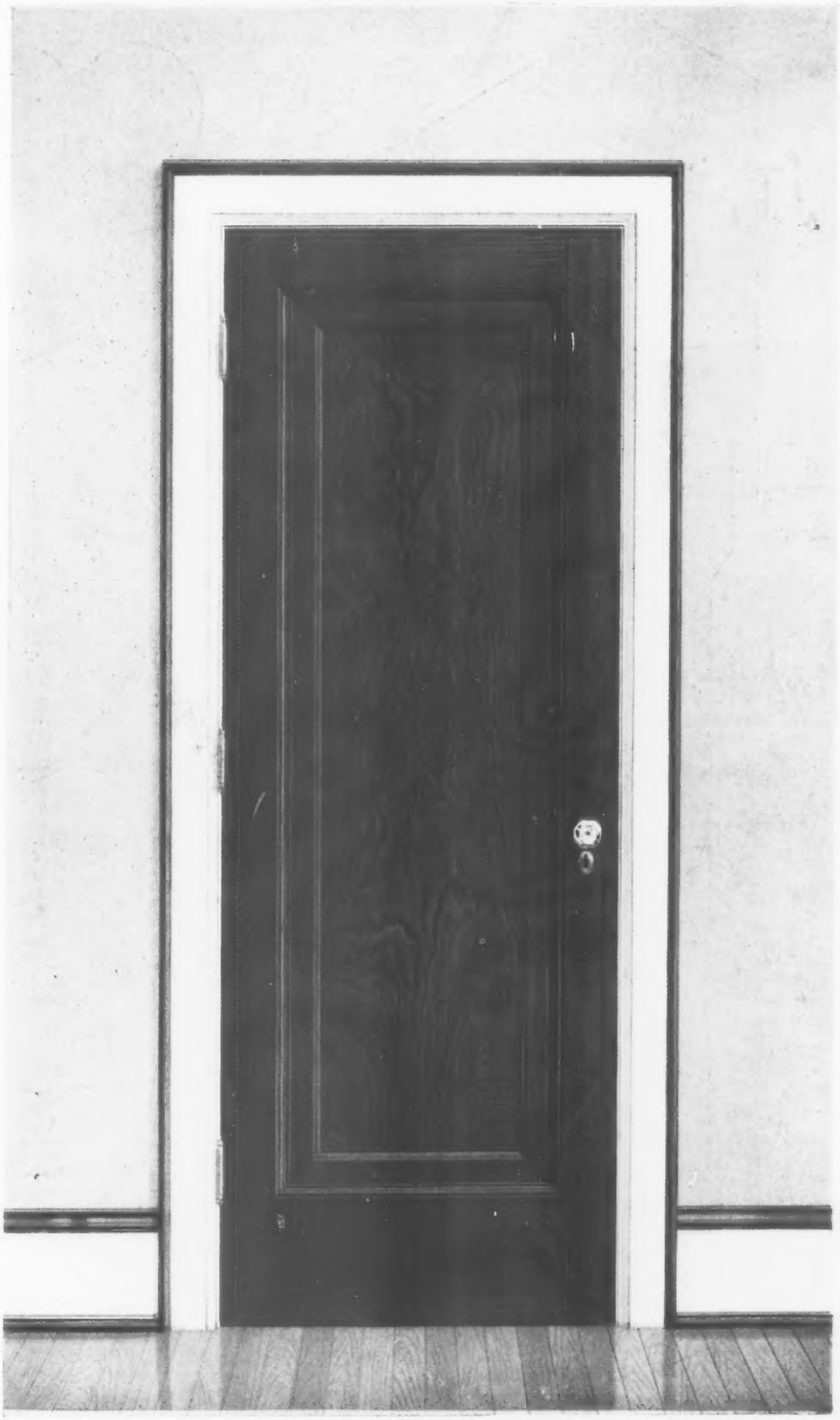
*We have some interesting literature ready to send you*

**THE HERCULES CORPORATION**
**EVANSVILLE** **Dept. B** **INDIANA**

# ENGINES

# The Miracle Door

TRADE MARK REG. PATENTS PENDING



Color—Walnut and Old Ivory

Costs only one dollar more than an ordinary door

Paine Lumber Company, Ltd. Oshkosh, Wisconsin, U. S. A.

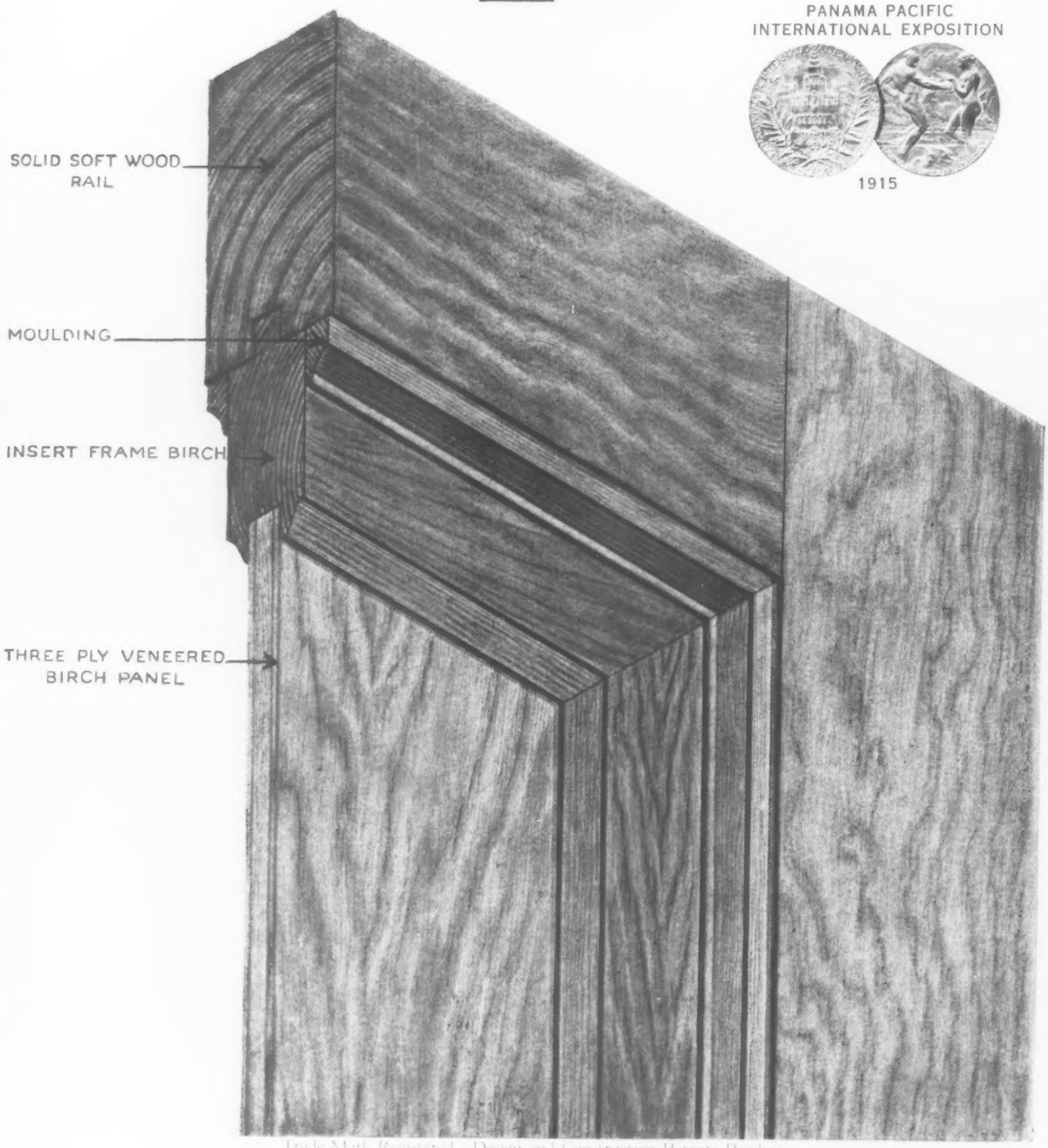
# The Miracle Door

TRADE MARK REG. PATENTS PENDING

PANAMA PACIFIC
INTERNATIONAL EXPOSITION



1915




Trade Mark Registered. Design and Construction Patents Pending

## The Miracle Door costs only one dollar more than an ordinary door

The Miracle Door marks an epoch in the door industry and is the greatest value ever offered in doors. It is built and guaranteed by an Organization that holds all the gold medals ever awarded the door industry. In producing the Miracle Door, we start in the forest and operate from tree to finished product with the largest woodworking plants in the world.

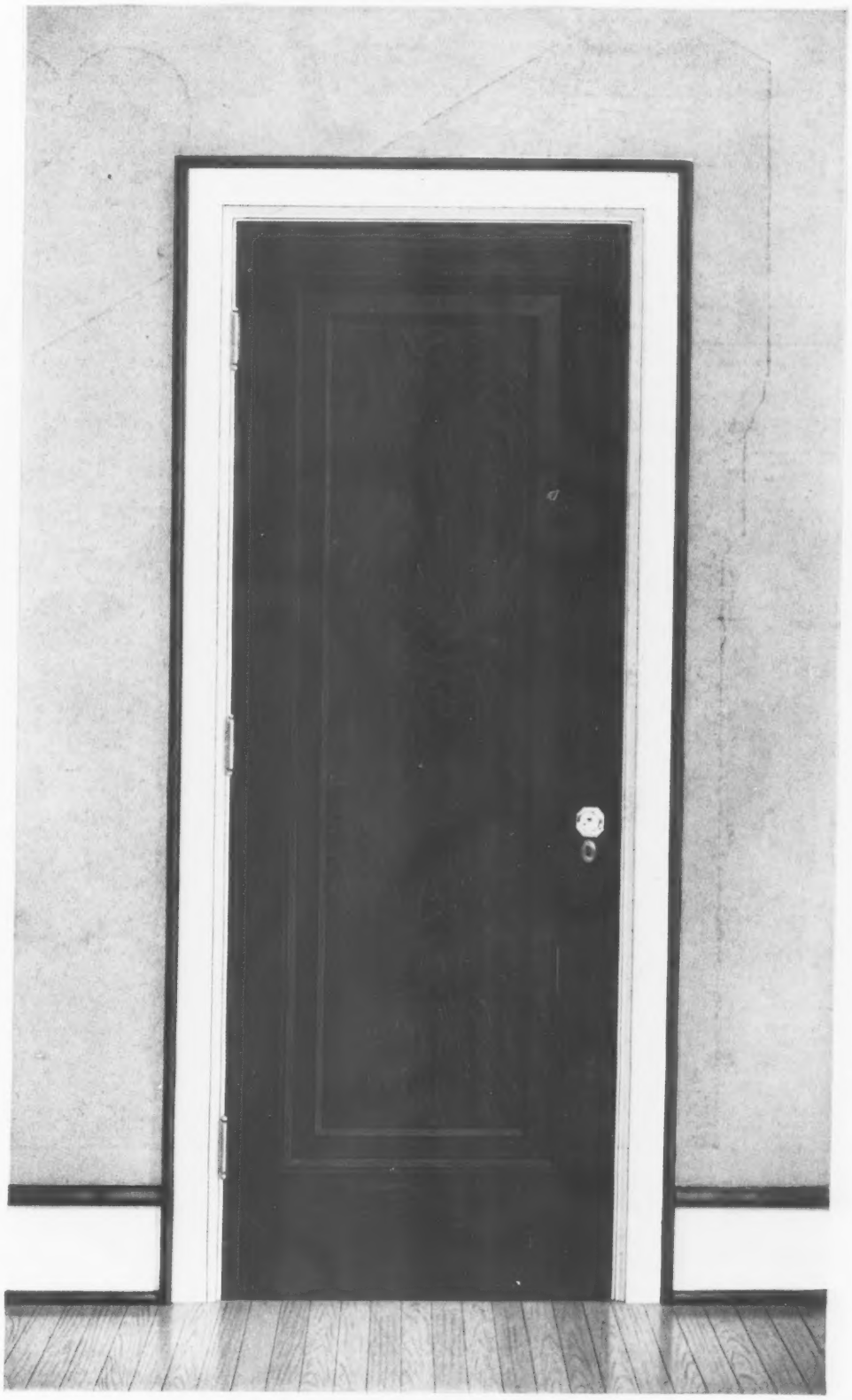
Wholesale stocks of Miracle Doors carried in thirty-five cities. For sale by all dealers or write us direct. Catalogs are ready for distribution.

*By invitation, we are the sole Gold Medal Door Exhibitor in the Smithsonian Institute, Washington, D. C.*

Paine Lumber Company, Ltd. Oshkosh, Wisconsin, U. S. A.

# The Miracle Door

TRADE MARK REG. PATENTS PENDING



Color—Brown Mahogany and Old Ivory

Costs only one dollar more than an ordinary door

Paine Lumber Company, Ltd. Oshkosh, Wisconsin, U. S. A.

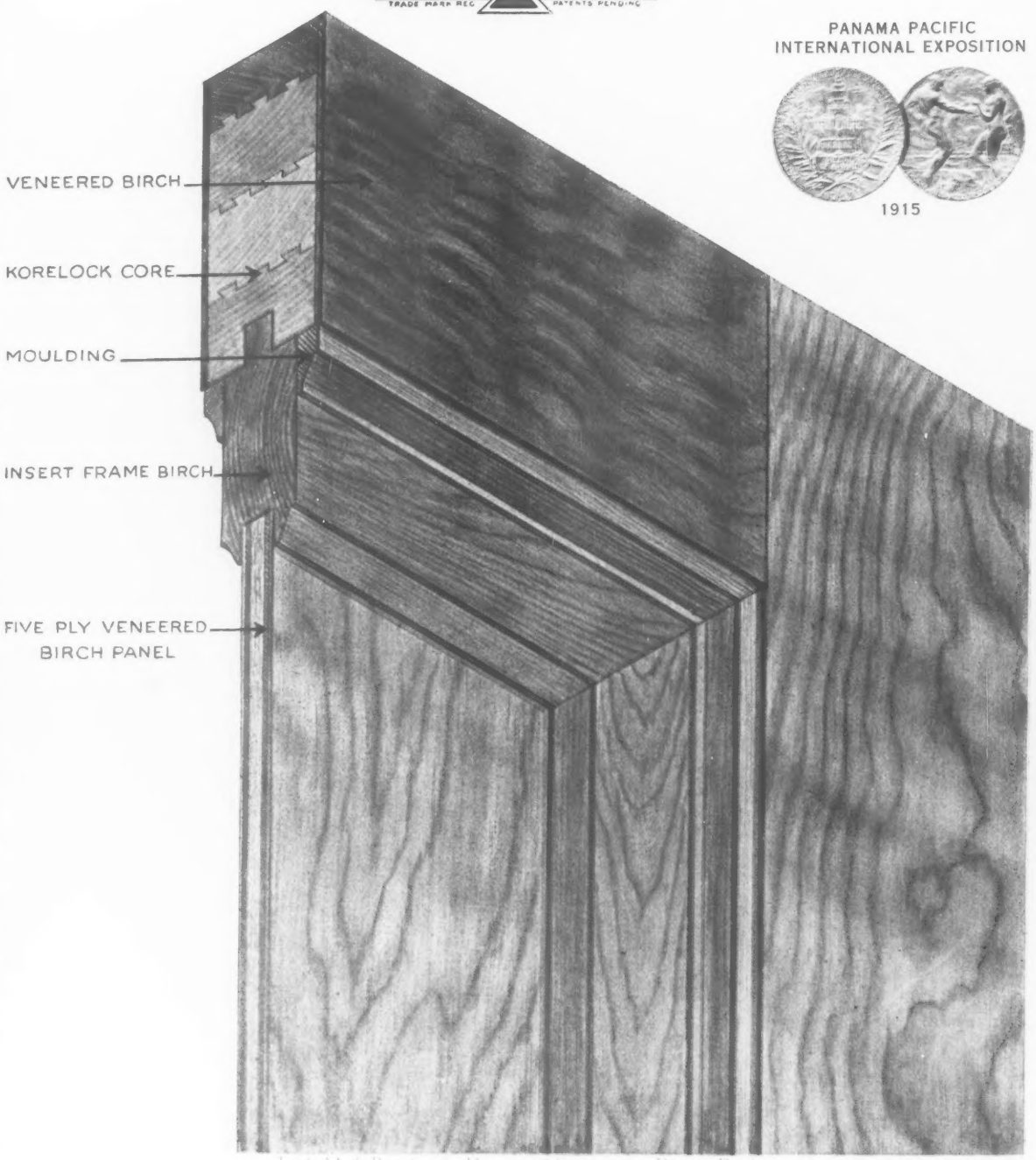
# The Miracle Door

TRADE MARK REG. PATENTS PENDING

PANAMA PACIFIC
INTERNATIONAL EXPOSITION



1915




Trade Mark Registered. Design and Construction Patents Pending

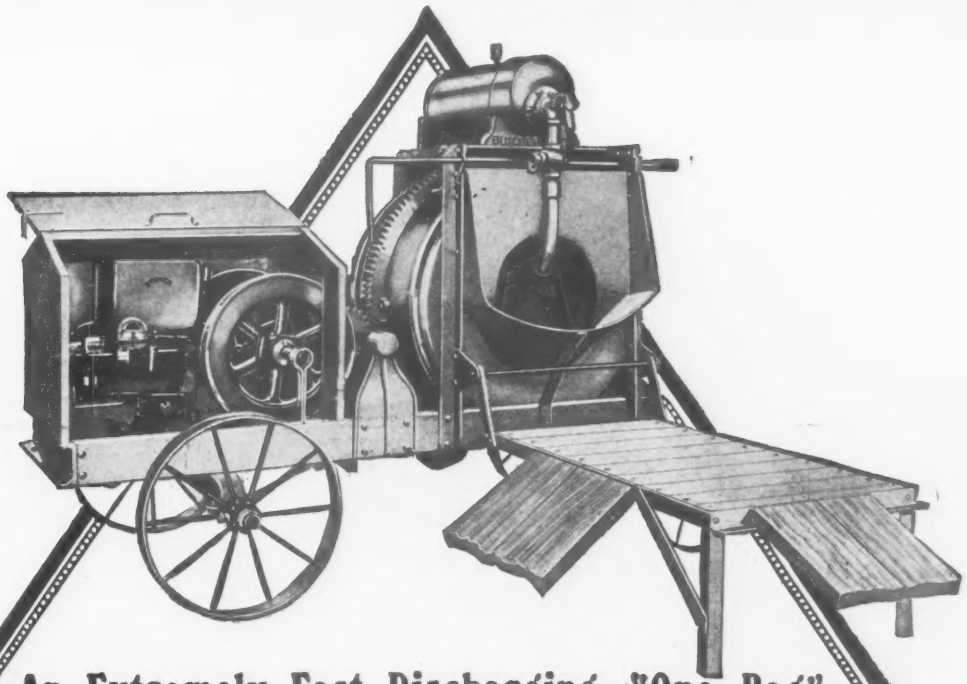
## The Miracle Door costs only one dollar more than an ordinary door

The Miracle Door is everything its name implies in quality, construction and price. It combines the simplicity of a one panel door with the richness of a moulded door. It is a cabinet shop product at the price of a stock door. It harmonizes with all styles of trim and all colors of finish. Like all Paine products it is fully guaranteed.

Wholesale stocks of Miracle Doors carried in thirty-five cities. For sale by all dealers or write us direct. Catalogs are ready for distribution.

*By invitation, we are the sole Gold Medal Door Exhibitor in the Smithsonian Institute, Washington, D. C.*

Paine Lumber Company, Ltd. Oshkosh, Wisconsin, U. S. A.



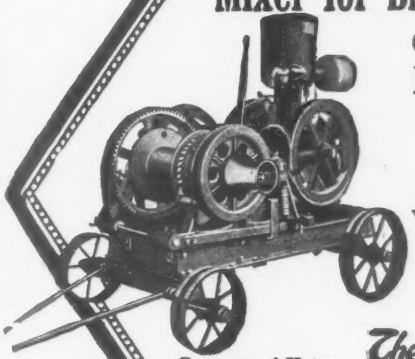
# An Extremely Fast Discharging "One Bag" Mixer for Bridge Builders and General Contractors

Over 6000 Contractors, Road Builders and Engineers use

## BOSS EQUIPMENT

LABOR SAVERS FOR CONTRACTORS

Write for the big Catalog just off the press—Get our new low 1922 prices and terms.

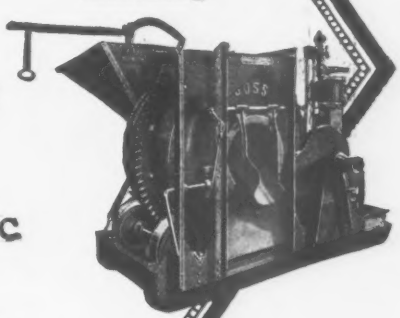


**Contractors' Hoists**

Single or Double for General Hoisting, Pile Driving, Tower and Drag Line Work.

**Heavy Duty Mixers**

½, 1, 2, 3, 4-Bag Sizes. (Hyatt Roller Bearing)



**The American Cement Machine Co. Inc.**

**Keokuk Iowa**

THE 300,000 HP ELECTRIC CITY

Branch Offices and Warehouses in all Principal Cities.

| | | |
|---|---|---|
| NEW YORK | ATLANTA | ST. LOUIS |
| CAMBRIDGE (Mass.) | KNOXVILLE | TULSA |
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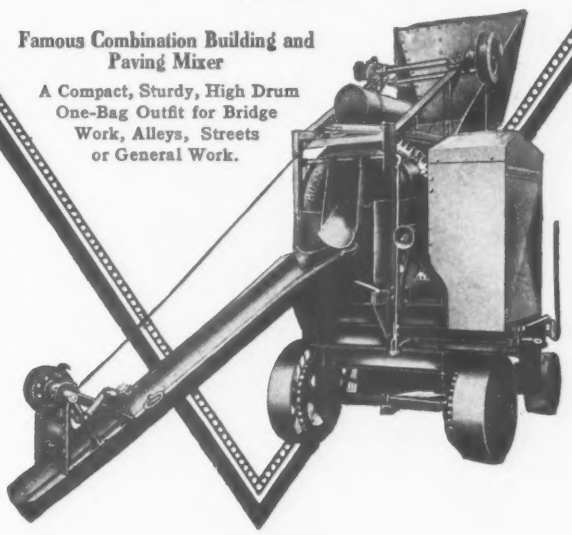
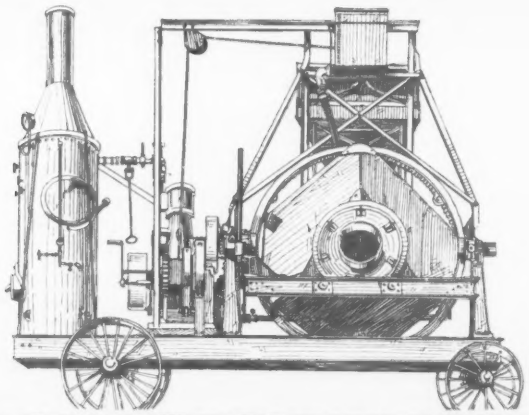
| WASHINGTON | LOUISVILLE | DALLAS |
| PHILADELPHIA | NEW ORLEANS | EL PASO |
| RICHMOND | MINNEAPOLIS | LOS ANGELES |
| | DETROIT | PORTLAND |
| | OMAHA | |

**Famous Combination Building and Paving Mixer**

A Compact, Sturdy, High Drum One-Bag Outfit for Bridge Work, Alleys, Streets or General Work.





PAVER DRAGLINE TRENCHER LOADER MIXER

LOCOMOTIVE DITCHER

CLAMSHELL BACKFILLER

SKIMMER SHOVEL

IF speed and perfection of mix spell greater profits to you in your 1922 concrete work, you will want to know all about AUSTIN Cube Mixers. Through the cube-mixing principle of folding and kneading the materials uniformly together beneath a full batch pressure, you secure quality concrete — in minimum time.

***Mixer Catalog U-7 gives full description***

**Austin Machinery Corporation**

**Railway Exchange Building, Chicago**

| | | |
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| Atlanta | Milwaukee | Omaha |
| Chicago | Minneapolis | Pittsburg |
| Davenport | New Orleans | Portland |
| Detroit | New York | San Francisco |
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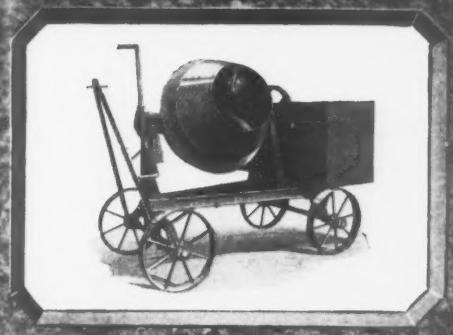
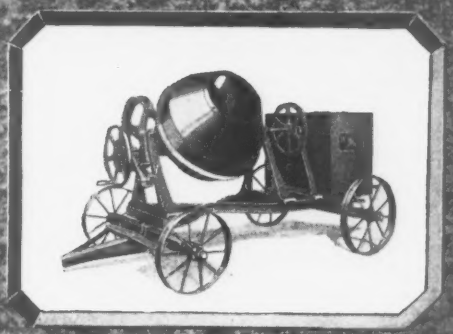
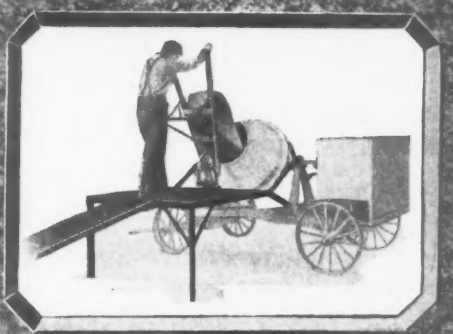
AUSTIN MACHINERY

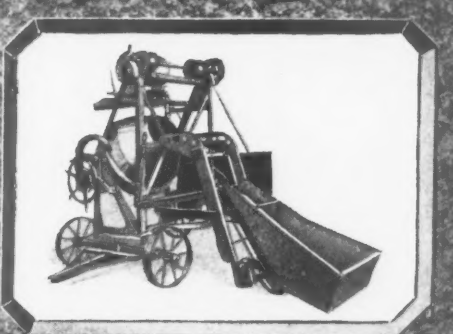
MOVES THE EARTH - MIXES THE CONCRETE

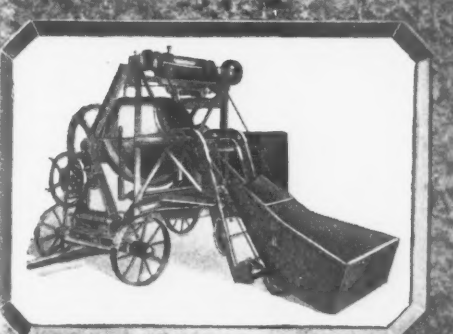
REG. U.S. PAT. OFF.











# WONDER MIXERS

Built in four sizes, 3, 4, 5, 7 cubic feet mixed concrete per batch. There is a WONDER Mixer especially adapted for your work, whether large or small, available for IMMEDIATE shipment from our *nearest to you* distributing point, avoiding all freight delays.

The WONDER 1922 Models represent the biggest values of their history. Values not entirely determined by the amount of price reduction, for while WONDER prices are consistently lower there has been no compromise with WONDER quality to attain them.

Readjustment in the WONDER factory is complete. We are able, therefore, to offer in 1922 a highly improved product and a new high standard of values.

**Ask for Catalog M 34**

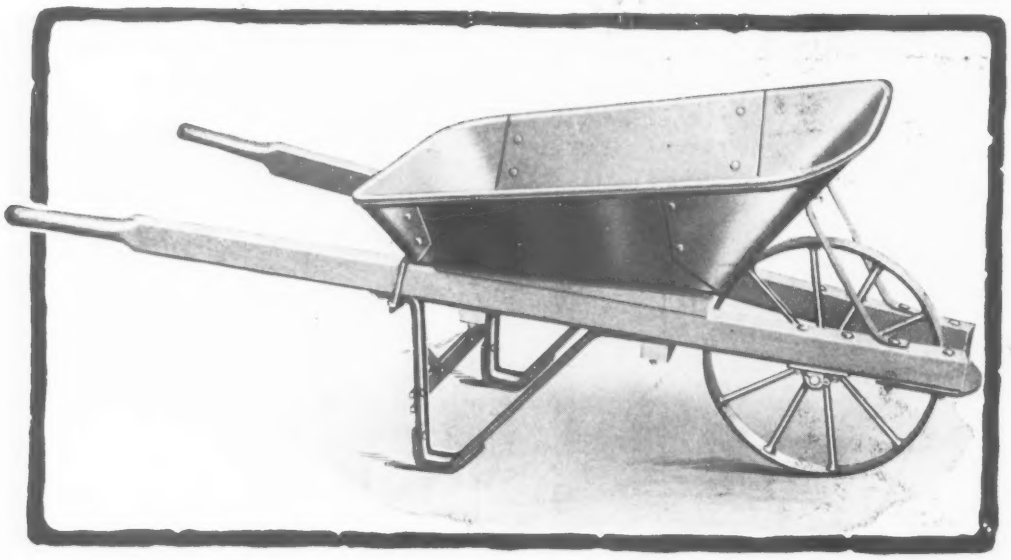
**It contains the biggest mixer values on the market today**

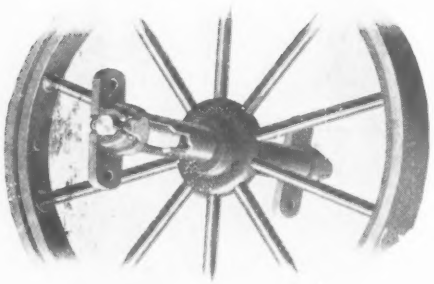
**Construction Machinery Co.**

Formerly WATERLOO CEMENT CORP.

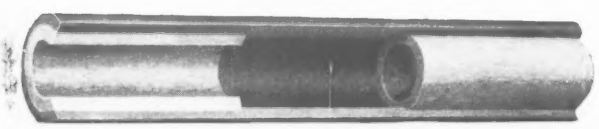
103 Vinton Street WATERLOO, IOWA

# It's The Way A Sterling Is Built



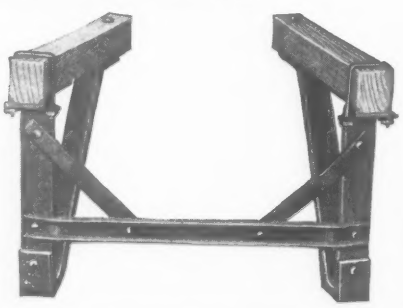


*The Ten-Spoke Wheel*



*The Self-Lubricating Bearing*

*The Riveted Leg Construction*



## The 6 Exclusive Sterling Features

1—**THESE TWO EXTRA SPOKES**—The only wheelbarrow with ten spokes—others do with eight. The extra two double tire strength, end flattened and broken tires.

2—**SELF-LUBRICATING BEARINGS NEVER WEAR**—No oiling, no squeaks, no worn-out bearings. Sterling Bearings outlast the wheelbarrow or we replace them free. This self-lubricating feature reduces wheeling effort 50%.

3—**THIS BROAD FLAT LEG BEARING WITH EXTRA STEEL SHOE**—Heavy Channel Iron Construction. Lasts indefinitely. Never wears through as do usual pointed legs.

4—**JUST A COTTER PIN, BUT**—It locks the axle so it can't turn with the hub. No nuts or bolts to work loose here nor to hinder the wheel. Think this little cotter pin over.

5—**HANDLES CLAMPED ON**—No bolt holes in the handles to weaken them. Here's added strength at the point of greatest strain. Sterling construction again.

6—**RIVETS vs. STOVE BOLTS**—Sterling Riveted leg construction cannot work loose. Stove bolts on ordinary wheelbarrows a constant source of trouble.

# Sterling Wheelbarrow Company

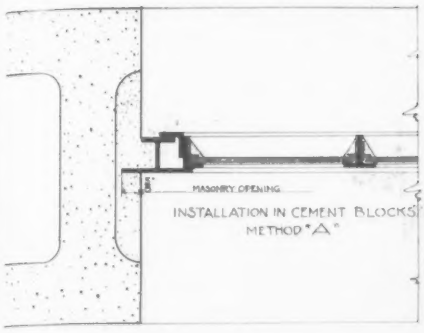
NEW YORK
BOSTON
CLEVELAND

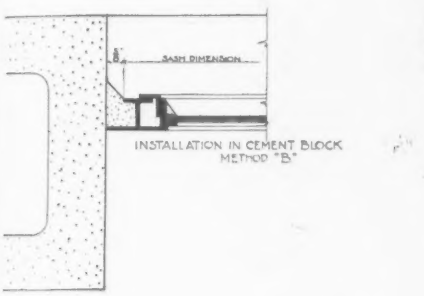
**MILWAUKEE, WIS.**

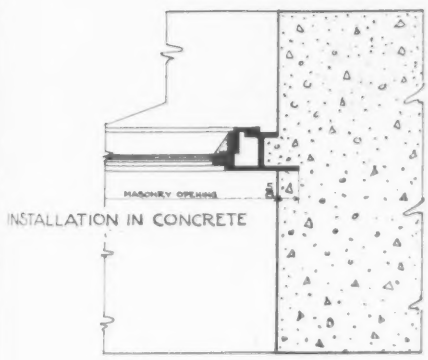
DETROIT
CHICAGO
ST. LOUIS

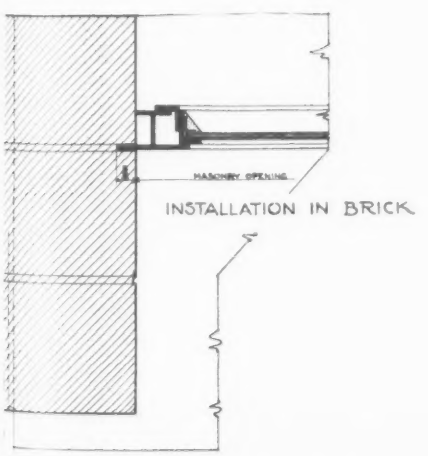
CANADIAN AGENTS-MUSSENS LIMITED, MONTREAL, TORONTO, WINNIPEG, VANCOUVER

EXPORT DEPARTMENT
ALLIED MACHINERY COMPANY OF AMERICA



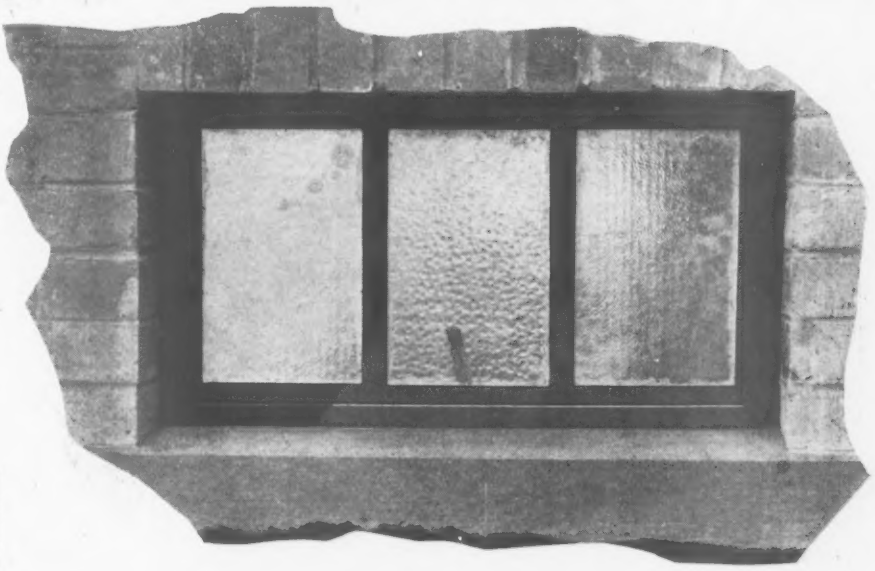




# SOMETHING NEW!!!

## Febrisco Solid Steel Basement Sash

**(Patent Applied for)**



THE use of wood sash for basement windows is out of date. The modern builder looks to solid steel sash to give satisfaction. Febrisco Solid Steel Basement Sash provides the ideal sash for the basement window.

Febrisco Steel sash **is** a real economy—a time and money saver. Apart from giving greater satisfaction, it **costs less installed** than the ordinary wood sash job

It will not rot, warp, bind or shrink.

It is weather and vermin proof and stays that way.

It gives more glass space for the wall opening than wood sash.

It is anchored permanently into the building.

It is a complete unit — hardware and fittings forming part of the sash.

It can be set by the mason and glazed by the painter.

It has clips for fastening fly screen.

It will stand the hardest usage. Cannot be broken.

Febrisco Solid Steel Basement Sash is made in 3 standard sizes, in both 2 and 3 lights and meets all practical requirements. It can be installed in brick, masonry, cement block, tile or concrete walls.

***Use Febrisco Sash on your next contract. Write at once for prices and full particulars.***

## FEDERAL BRIDGE & STRUCTURAL COMPANY

**General Office and Works; Waukesha, Wisconsin**

*Branch Offices:*

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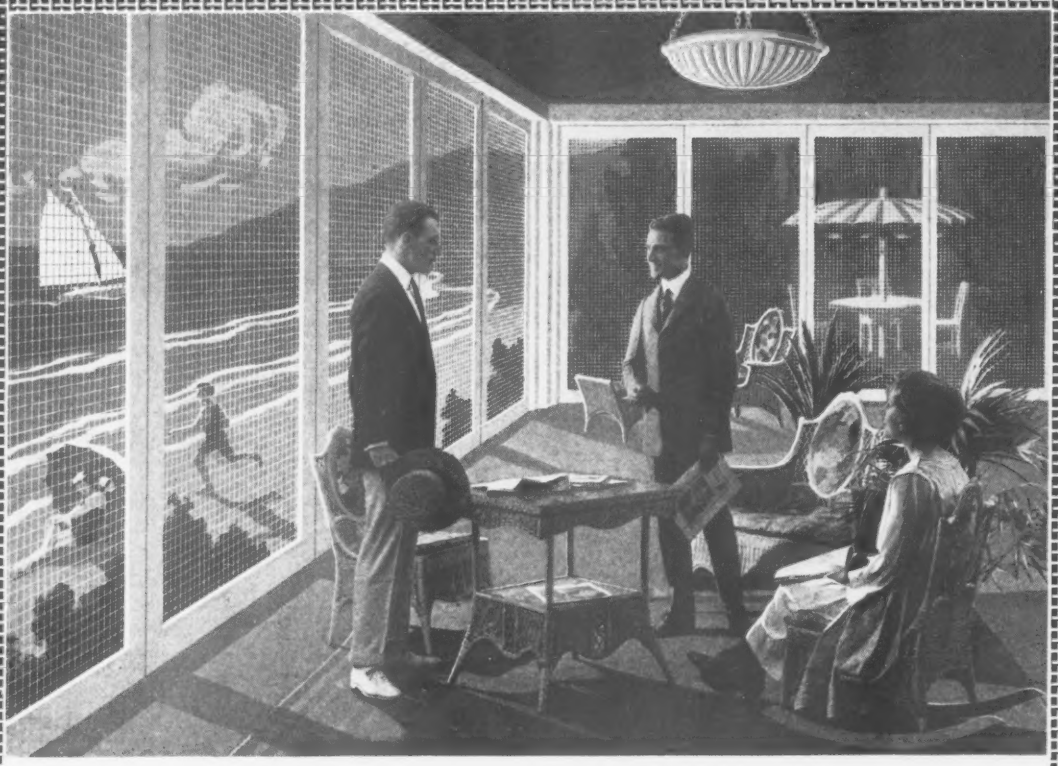
WATERLOO, IOWA SIOUX CITY, IOWA
DENVER ENGINEERING WORKS COMPANY, DENVER, COLO.



# RIGHT NOW!

START early! Screened Porches are money makers for you. Get YOUR share. Many are in need of new screens right now or can be shown how to add an attractive, enjoyable and protecting Sun Room or Sleeping Porch.

Our Blue Print Porch Plan showing sectional perspective sent free for the asking. It helps you with prospects. Talk and use PEARL Wire Cloth. PEARL lasts longer, does not bag or sag, requires no painting and besides being most economical is the most handsome.

***Back of the enormous and steadily increasing demand for PEARL is its unusual wear quality due to its metallic coating—as special process owned and controlled exclusively by us.***

Specify PEARL. Insist upon the genuine, which has two copper wires in the selvage and our round tag on each roll.

*We have a dealer in your town. See him or write us if you are interested in permanently screening doors, windows or porches. Samples and literature FREE.*

*Ask for Our Porch Plan It's Free*

Address Department "A"

## The Gilbert & Bennett Mfg. Company

New York Georgetown, Conn. Chicago Kansas City

PEARL is made in Regular Grade (12x13 mesh and 14, 16, 18, 20, 24 and 30 mesh; also Extra Heavy Grade (14 mesh only).

**The best hardware dealer in your city sells "PEARL"**

Big picture shows how Sharon Channels and Mahoning Metal Lath are used in false beam and fancy plaster construction in Cleveland's new $8,000,000 Municipal Auditorium. Small picture brings out superior keying qualities of Mahoning Lath.

# Team Mates Where Quality Counts

IN the construction of artificial beams and fancy plaster work, Sharon Cold Formed Channels and Mahoning Metal Lath have been teaming it with wonderful success for many years.

The metal lath is quickly and easily fastened to the channels and forms an absolutely solid base upon which to plaster. The smaller photograph shows how well the plaster keys.

Sharon Channels, although very strong and rigid, are easily formed to any shape, and lend themselves to the most complicated construction work.

Samples of Sharon Channels, Mahoning Metal Lath and any of the other fireproofing materials of the complete Youngstown line will be gladly sent you on request. And your name will be placed on the regular mailing list to receive our interesting bi-monthly magazine *"Y. P. S. Pointers,"* describing fireproofing construction.

**YOUNGSTOWN PRODUCTS FOR MANUFACTURER & BUILDER**

| AGRICULTURAL | AUTOMOTIVE | GENERAL | FIREPROOFING |
|---|---|---|---|
| TOOL & WEIGHT BOXES SEATS | RADIATOR SHELLS CRANK CASES | LIFT TRUCK PLATFORMS TANK HEADS | MACHINE GUARD & FACTORY PARTITION MATERIAL |
| LEVER LATCHES FURROW & GONG WHEELS | HOUSING COVERS BRAKE DRUMS | INDUSTRIAL CAR WHEELS WHEEL DISCS | COLD FORMED CHANNELS & ANGLES-BOTH HEAVY & LIGHT |
| HARROW TOOTH CLAMPS CULTIVATOR SHIELDS | CLUTCH DISCS STEP HANGERS | HATCH CLEATS BARREL HEADS | YOUNGSTOWN & PARKER CORNER BEAD-EXPANDED METAL |
| LAND ROLLER HEADS | HUB FLANGES | COMPOUND BOXES | MAHONING, ZEE & IDEAL METAL LATH |

**THE YOUNGSTOWN PRESSED STEEL COMPANY**

Youngstown PRODUCTS
REG. U.S. PAT. OFF.

MAIN OFFICES AND FACTORIES
WARREN, OHIO

DISTRICT OFFICES
New York — 50 East 42nd Street
Chicago — 220 South State Street

*Residence, Mr. Chas. Liggett, Newark, N. Y.*
*Architect, E. A. P. Kappenschmidt*
*Stucco on Sykes Expanded Cup Metal Lath.*

# *"Who Built that House?"*

WHEN an architect and builder achieve distinction in a cozy little home of modest cost there are a hundred prospects anxious to know who planned it, who built it, what materials were used.

Stucco lends itself easily to distinctive treatment that is not expensive.

## SYKES EXPANDED CUP METAL LATH

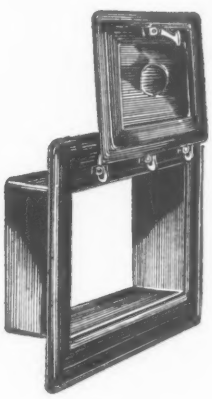
makes that treatment permanent. It is buried in the heart of the plaster. The perfect self-furring design insures it without the expense of furring strips, and with no chance of wrong application through ignorance of workmen. No "upside down" nor "wrong side out".

Sykes Expanded Cup is an unusual metal lath. It has extra weight and rigidity — wider strands and more metal per square yard. We want you to see it.

*Write today for a sample*

**Sykes Metal Lath & Roofing Company**
**504 Walnut Street**
**Niles, Ohio**

## *Sykes Economy Coal Chute Door*



*Needed in every home. Easier to install than sash and frame. Heavy pressed steel. Exposed parts galvanized and rust-proof. Fittings of malleable iron. No cast parts, nothing to break. Simplest and most efficient coal chute door on the market. Door is held open by patent hinges, automatically locks on inside when shut. Low in price, sells wherever shown.*

***Write for full information***

KEYSTONE COPPER STEEL

FOR every purpose to which sheet metal is adapted—in the shop or for construction purposes—KEYSTONE Copper Steel Products give superior satisfaction and service. They combine the excellence of good materials and able craftsmanship.

AMERICAN SHEET AND TIN PLATE CO. APOLLO BEST BLOOM TRADE MARK REGISTERED PITTSBURGH KEYSTONE COPPER STEEL

*Use Apollo-Keystone Galvanized. Shall we send new Weight Cards and Apollo Calendar?*

KEYSTONE COPPER STEEL

MF 32 POUNDS COATING KEYSTONE COPPER STEEL

*Write for booklets describing Keystone Copper Steel Sheets, Formed Products, and Terne Plates.*

*Gives Lasting Wear and Greatest Rust Resistance*

The increased life of steel when alloyed with copper is a well established metallurgical fact. Time and weather have proved it.

For roofing, siding, gutters, spouting, eaves trough, sheet metal and tin work, use Keystone quality Galvanized Sheets and Roofing Tin Plates—best for both builder and owner. Sold by leading metal merchants.

We manufacture Sheet and Tin Mill products for all purposes. Write for full information and our interesting Keystone booklets—also set of new and revised Weight Cards.

American Sheet and Tin Plate Company

General Offices: Frick Building, Pittsburgh, Pa.

DISTRICT SALES OFFICES:

Chicago Cincinnati Denver Detroit New Orleans New York Philadelphia Pittsburgh St. Louis

Export Representatives: UNITED STATES STEEL PRODUCTS COMPANY, New York City

Pacific Coast Representatives: UNITED STATES STEEL PRODUCTS COMPANY, San Francisco, Los Angeles, Portland, Seattle

# There is no added cost for "Morgan-Quality"

"Morgan-Quality" offers you individual woodwork style and quality at volume production savings in price.

"Morgan-Quality" stands for finest woods and skillful workmanship of highly specialized men.

With "Morgan-Quality" Standardized Woodwork the element of delay is eliminated. You can complete jobs quicker —your turnover is quicker and hence your profits larger.

## BUILDING WITH ASSURANCE

### The Master Book of Building

Pronounced the most comprehensive of its kind ever printed. Contains hundreds of pages of important information—never before contained in any single book. This includes building types with floor plans, many interiors made from "Morgan-Quality" Standardized Woodwork. Then comes priceless information on important phases of building by such well known firms as Marshall Field & Company, MacBeth-Evans Company, Standard Sanitary Mfg. Company, E. I. du Pont de Nemours, P. & F. Corbin, etc.

"Building With Assurance" is entirely too costly for general distribution. Therefore we have prepared a beautiful prospectus which shows actual pages of the master book and describes it in detail. This prospectus tells, also, how you may obtain a copy of the Master Book. We will mail you a copy, **free,** if you write. Address Dept. T-3, our nearest office.

## Morgan Woodwork Organization

MORGAN SASH & DOOR CO.
Chicago, Illinois

MORGAN MILLWORK CO.
Baltimore, Maryland

MORGAN COMPANY
Oshkosh, Wis.

# "MORGAN-QUALITY"

STANDARDIZED WOODWORK

(102B)

# Individuality, Beauty and Adaptability Account for its Growing Popularity

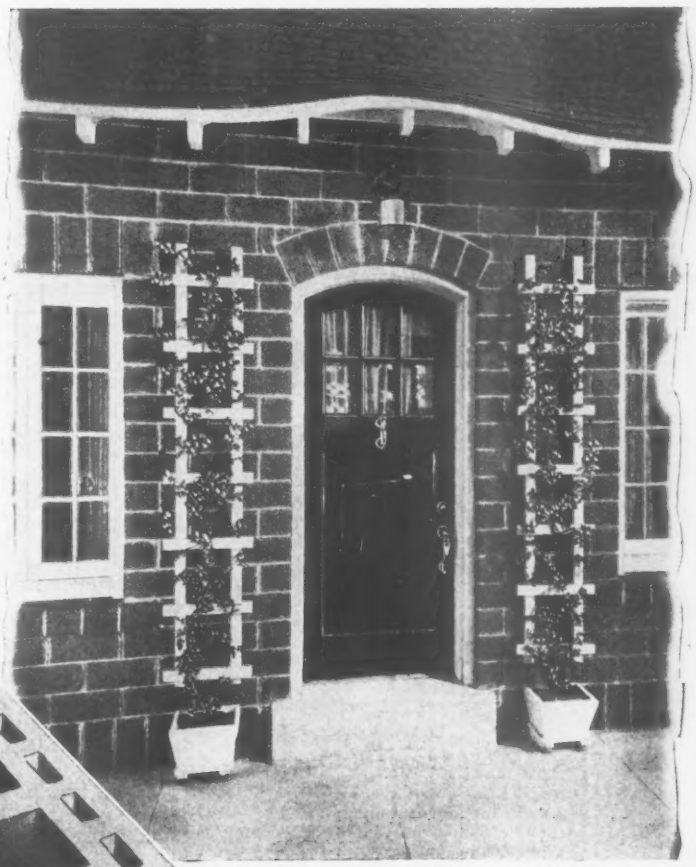
NOTE how well the illustrations demonstrate the attractiveness and practicability of Natco Double Shell Tile. The ample vertical and bed joints make it possible for the mason to spread on the mortar quickly and easily. The moisture stop at each end of the tile in combination with the double shell construction eliminates through mortar joints and prevents heat, cold and moisture from penetrating through the walls.

Special tile in full and half lengths take care of lintels, sills, corners, window and door openings, joist and soldier courses, water-tables, etc., and readily adapt themselves to any distinctive architectural or decorative treatment.

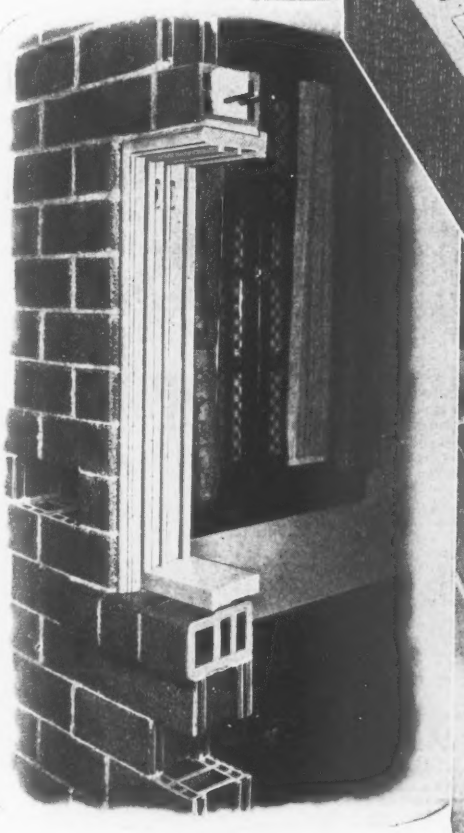
Write for further information about NATCO Double Shell Tile—a building material easy to lay and install, with every advantage of ordinary hollow tile construction coupled with a flexibility, beauty and lasting satisfaction found in no other material on the market today.

NATIONAL·FIRE·PROOFING
·COMPANY·

1417 Fulton Building
PITTSBURGH, PA.



Entrance way to a NATCO Bungalow. NATCO Double Shell Tile lends itself readily to architectural and decorative treatment.



NATCO DOUBLE SHELL TILE

...ction shows sill tile, lintel tile and joist tile in full ...d half lengths. Enough other special shapes are ...rnished to take care of ordinary residence details.

# *Here's the* ANSWER *to* How to PLAN, FINANCE AND BUILD YOUR HOME

BETTER built small homes—3 to 6 rooms—at lower cost from plans designed to eliminate building waste without sacrificing good looks—this was the ideal of the group of practicing architects who compiled the remarkable new home plan book, "How to Plan, Finance and Build Your Home."

This book and plan service is part of the national small home building movement originating with The Architects' Small House Service Bureau of Minnesota, Inc., and now being extended by The Architects' Small House Service Bureau of the United States, Inc. The United States Service Bureau has the endorsement of the Department of Commerce of the United States Government and the American Institute of Architects. The Minnesota group of architects compiled this book for the Southern Pine Association, which, jointly with the Minnesota Bureau, now the Northwestern Division of the United States Service Bureau, is interested in its distribution.

***In endorsing the work of The Architects' Small House Service Bureau of the United States, Inc., Mr. Herbert Hoover, Secretary of the Department of Commerce, says:***

"I have looked into the work of The Architects' Small House Service Bureau of the United States with its divisions and branches and have examined its organization and incorporation papers. The complete plans, specifications, documents and bills of materials with the designs worked out for local conditions and to use stock materials and eliminate waste, materially simplify home building problems. The form of control by The American Institute of Architects should guarantee a high standard of service. It gives me pleasure to endorse this work and to assure you that the Department of Commerce will do all it can to cooperate with the Institute and the Bureau."

"HOW TO PLAN, FINANCE AND BUILD YOUR HOME," is 11x16 inches, containing 156 pages. One hundred and two homes are shown with their floor plans and a detailed description of the complete house. It has been pronounced by building authorities the most complete home plan book ever compiled.

The home pictured above was built from this plan service

The book and plans may be obtained direct from either The Architects' Small House Service Bureau, Northwestern Division, Inc , or the Southern Pine Association. The book is sold for $2.50 prepaid. The service includes complete working drawings, details, specifications, quantity surveys, forms of agreement, ready to use, at prices ranging from $17.50 to $32.50, depending upon the size of the house.

*Order From Either*

SOUTHERN PINE ASSOCIATION
New Orleans, La.

*or*

THE ARCHITECTS' SMALL HOUSE SERVICE BUREAU
NORTHWESTERN DIVISION, INC.
Minneapolis, Minn.

## *Please Use This Coupon*

*Order from either the Southern Pine Association, New Orleans, La., or The Architects' Small House Service Bureau, N. W. Div., Inc , 1200 Second Avenue, So. Minneapolis, Minn.*

I enclose $2.50, for which please send me a copy of the book "How to Plan, Finance and Build Your Home."

Name .....

Address .....

(PLEASE PRINT NAME AND ADDRESS)

# OAK FLOORS

## (For Everlasting Economy)

Here

*A Bungalow*

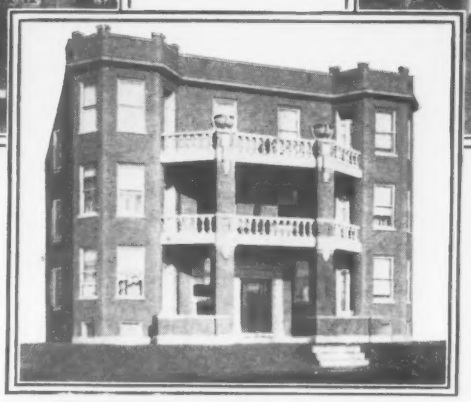
OAK
FMA
USA

*This trade-mark is stamped on every piece*

Here

*A Country Home*

and Here



*The Magnolia Apartments, St. Louis, Mo.*

SEE CATALOGUE IN SWEET'S

*For general specifications, see SWEET'S ARCHITECTURAL CATALOGUE, Page 458, 16th Edition; Page 389 15th Edition*

OAK long ago proved its genuine dollars-and-cents economy for all types of floors—in apartments, churches, schools, offices, factories, warehouses, institutions and public buildings, as well as homes.

Everybody agrees that Oak Floors are the most beautiful, but many prospective owners who need a heavy traffic floor are often unaware of the great saving afforded by their durability, sanitary and easy-to-clean features.

In educating the public to the truth about Oak Floors, builders render a high service — influencing prospective owners towards their best interests. A service doubly appreciated later on.

A special thickness (3/8 inch) for overlaying old floors should be remembered on remodelling contracts.

Also that a building with Oak Floors usually brings 25% or more on sale or rental, making a wise investment as well as an economy.

Our three ***free*** booklets contain much valuable and accurate information for your data files.

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OAK FLOORING MFRS. ASSN.
OF THE U. S.
1038 Ashland Block, Chicago, Ill.

**Oak Flooring Mfrs. Assn.**
**1038 Ashland Block, Chicago, Ill.**

Send me, without obligation on my part, your three booklets, in colors, on the uses and advantages of Oak Flooring.

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**Nationally Known Products**

Southern Pine Lumber and Timbers

Creosoted Lumber, Timbers Posts, Poles, Ties, Piling Wood Blocks

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Sash and Doors

Standardized Woodwork

Gum and Oak Lumber

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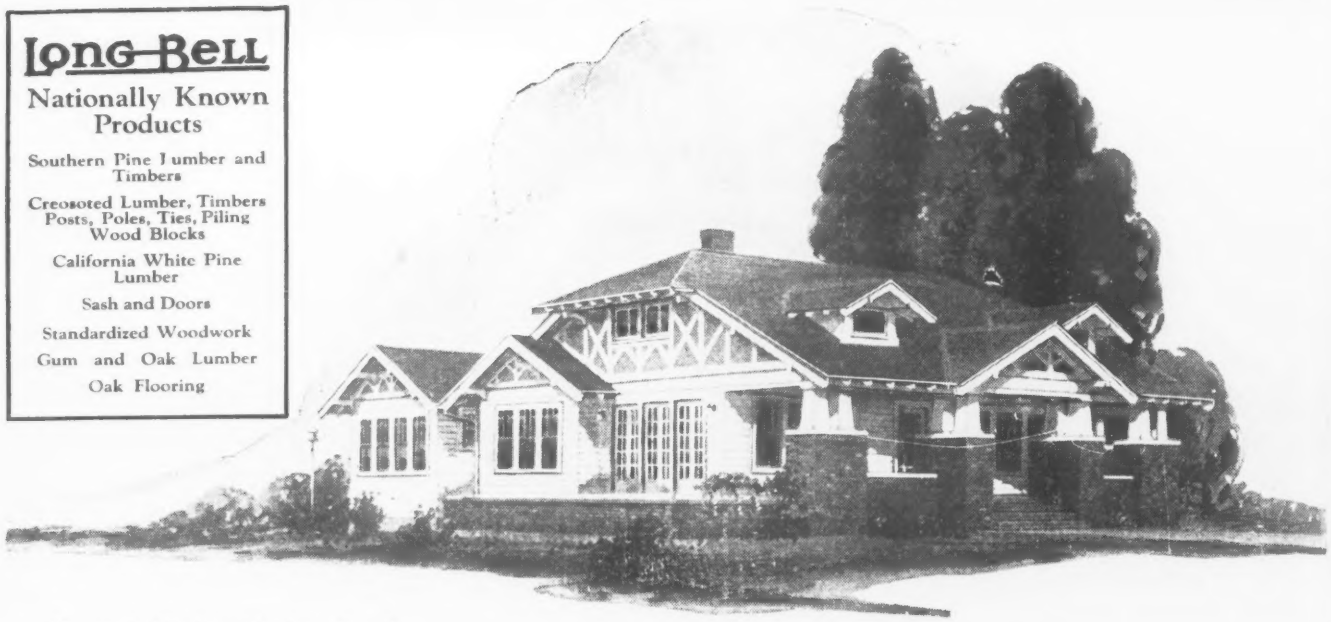
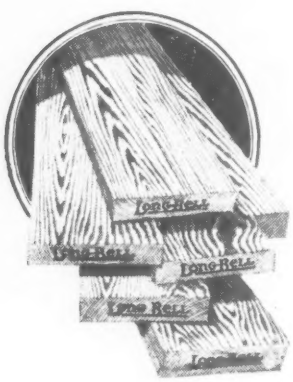


*You can build a home like this. Consult your retail lumberman. Ask him to show you Long-Bell Plan No. 2062. If he hasn't it, write us. There are 60 other homes in Long-Bell service.*

# LONG-BELL

## *Trade Marked* LUMBER




**When you think of LONG-BELL Lumber, think of more than good Lumber—Think of what that lumber will build—**

## Homes of Charm and Distinction

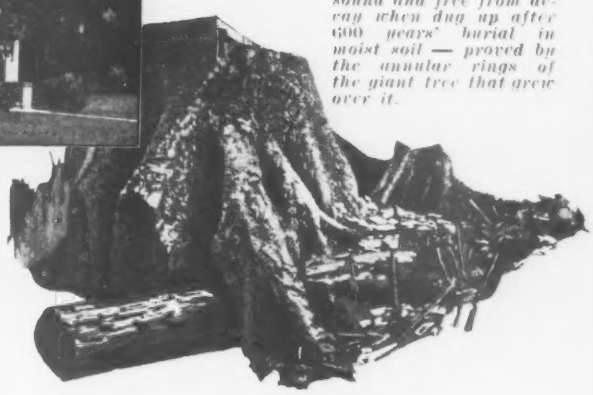
Long-Bell service includes something more than the manufacture of good lumber. It includes a home plan service that is distributed to retail lumber dealers to make it easy and convenient for home builders to select appropriate designs and to obtain estimates of cost.

Go to your retail lumberman. Ask him to show you Long-Bell home plans. Choose a plan that will fit your needs and then ask the lumberman to give you an estimate of the cost of that home complete. You will be surprised at the economy, as well as the beauty and convenience, of Long-Bell homes.

*Any retail lumberman, who has Long-Bell plan service, can give you an estimate of the cost of a home like this. Ask for Long-Bell Plan No. 1293. There are 60 others.*

**Build with Lumber, the least expensive material you can buy today. To be assured of obtaining lumber of uniform high quality ask for lumber bearing the LONG-BELL brand.**

**The Long-Bell Lumber Company**
R. A. LONG BUILDING Lumbermen since 1875 KANSAS CITY, MO.



*This Redwood log was sound and free from decay when dug up after 600 years' burial in moist soil — proved by the annular rings of the giant tree that grew over it.*

# Where You Should Use Rot-Resisting Moisture-Proof Redwood

FOR siding and porch work on which climbing vines retain moisture and foster the development of mould and decay, for shingle roofs shaded by trees so that they dry out slowly—wherever moisture lodges you can guarantee freedom from rot and decay if you use Redwood.

In addition to rot-resistance, which is due to a *natural* odorless preservative that permeates every fibre of Redwood during the growth of the tree, you will find that the high percentage of clear lumber in every car of our production cuts waste to a minimum. There's an evenness of texture and a uniformity about T. P. L. Co. Redwood, a dependable dryness and easy wood-working quality that keeps down labor costs.

You can buy T. P. L. Co Redwood lumber and mill work at prices not greatly higher than for other lumber which cannot compare with Redwood for rot-resistance, freedom from shrinking, swelling and warping, for good painting surfaces, and low average of knots, splits and other common defects.

For the convenience of builders and architects we have recently issued our "Construction Digest" and our "Engineering Digest," which either our New York or Chicago office will gladly forward on request, together with mill work and frame lists of Redwood items of our manufacture. Write for them.

THE PACIFIC LUMBER CO. of Illinois

2066 McCormick Bldg. Chicago — 833 No. 40 Rector St. Bldg. New York City

THE PACIFIC LUMBER CO.

San Francisco — Los Angeles

Export Company

A. F. THANE & CO., 40 Rector St., New York City

311 California St., San Francisco

The Pacific Lumber Co.

# Redwood

*The Largest Manufacturers and Distributors of California Redwood*

## Redwood should be specified for

***Exterior Construction***

including Colonial siding, clapboards, shingles, door and window frames; gutters, eaves, water tables and mudsills; porch rail, balusters and columns; mouldings and lattice.

Pickets and fencing; pergolas and greenhouses.

***Interior Finish***

Natural, stained or painted.

***Industrial Uses***

Tanks and Vats for water, chemicals and oil.

Factory roofs and gutters. Wood-block flooring.

***Wood Specialties***

such as Caskets and Burial boxes.

Incubators and ice-cream cabinets.

Cigar and candy boxes, etc.

***Railroad Uses***

such as railroad ties and tunnel timbers.

Signal wire conduits and water-tanks.

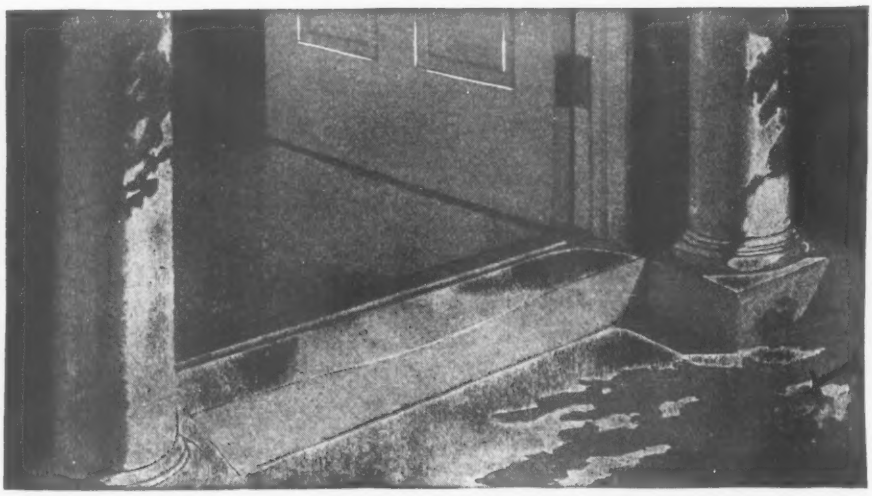
Car siding and roofing.

***Farm and Dairy Uses***

such as silos, tanks and troughs.

Hog feeders and implement sheds.

Wood-block floors, etc.



# *Why* MAPLE outwears STONE

Every shoe in the thousands that strike a stone sill, grinds off its toll of fine particles in an unchanging friction. But Maple builds up its own resistance to wear, because each passing foot increases the polish on this hard-fibred, tight-grained wood, making it smoother and smoother.

That is why Maple surpasses all other woods and all other materials for flooring. Because of its individual characteristics, Maple is used for floors in every good home, office, school, church, apartment, public or industrial building.

Architects, engineers, contractors, builders—all who desire to give their clients the finest of counsel and service, will say "Floor with Maple." Wherever wear is essential or beauty desired, it is the wood to choose. And to be sure of the grade and quality you should have, see that it is flooring produced and guaranteed according to the rigid inspection standards of the Maple Flooring Manufacturers Association.

MFMA flooring is made from the climate-hardened, slow-growth Maple of Michigan and Wisconsin—the source of the world's finest Maple for floors.

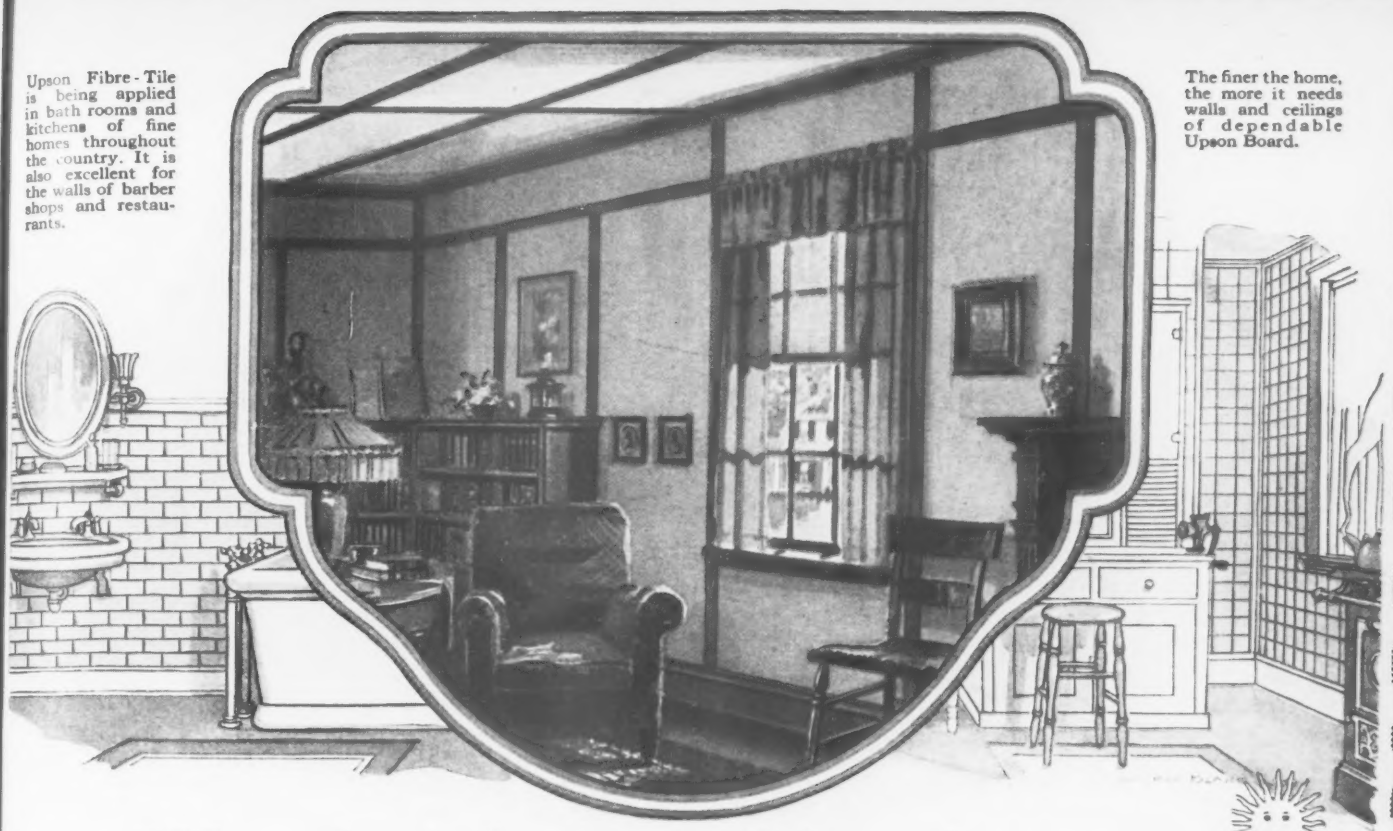
Kindred woods of Maple are Beech and Birch, produced by the same high manufacturing standards. This trio of flooring woods offers a variety and versatility of surface finish which will satisfy any client you may have.

MAPLE FLOORING MANUFACTURERS ASSN.
1053 Stock Exchange Building, *Chicago*

The letters **MFMA** on Maple, Beech or Birch flooring signify that the flooring is standardized and guaranteed by the Maple Flooring Manufacturers Association, whose members must attain and maintain the highest standards of manufacture and adhere to manufacturing rules which economically conserve every particle of this remarkable wood. This trademark is for your protection. Look for it on the flooring you use.

**MFMA**

# Floor *with* Maple



Upson Fibre-Tile is being applied in bath rooms and kitchens of fine homes throughout the country. It is also excellent for the walls of barber shops and restaurants.

The finer the home, the more it needs walls and ceilings of dependable Upson Board.

# "You don't know wall board unless you know Upson Board"

## Read what this prominent contractor and builder says —

*by John L. Lewis, Contractor and Builder, Binghamton, N.Y.*

"FOR years I did not recommend wall board. I would not let my customers use it except for attics where quality did not matter.

"I believed that all wall board was alike, *but I did not know Upson Board!* I had not tried it, because I said 'What's the use? Upson Board is no different from all the rest!'

**How my eyes were opened**

"And then one day a salesman asked me to try some Upson Board. I placed a trial order but even at that I was almost afraid to try it on a real good job.

"My first surprise came when I unloaded the big panels. I expected breakage. There was none. Suprise No. 2 came when we commenced to cut the board. Instead of breaking like a graham cracker and fraying at the edges, we found that it cut and sawed and handled like lumber.

"We finished a whole room without breaking a single piece. You know what that means if you have had experience with ordinary board.

**A wonderful painting surface**

"The biggest surprise of all was the finishing. I have seen all kinds of wall board painted. Some boards drink paint like a sponge, others have a waxy coating which is the ruination of a good paint job.

"But with Upson Board the first coat of paint covered perfectly, and two is all that is ever needed. I understand that big paint companies use Upson Board for making up their samples of paint.

"I have used it in my own home as well as some of the finest homes and buildings."

"If you are in doubt as I was, I suggest that you get some samples of Upson Board and learn the truth for yourself."

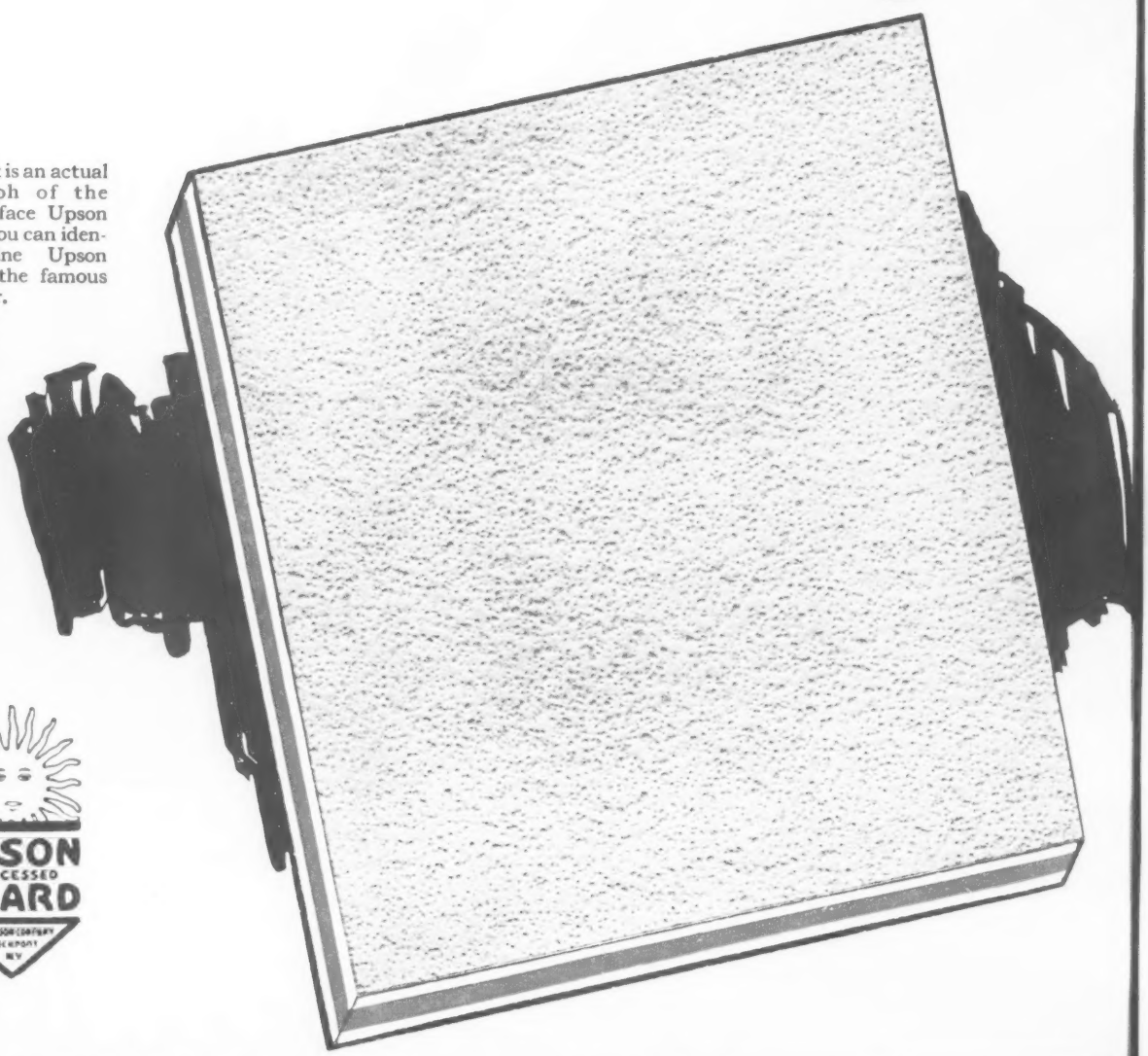
# UPSON PROCESSED BOARD

THE UPSON COMPANY

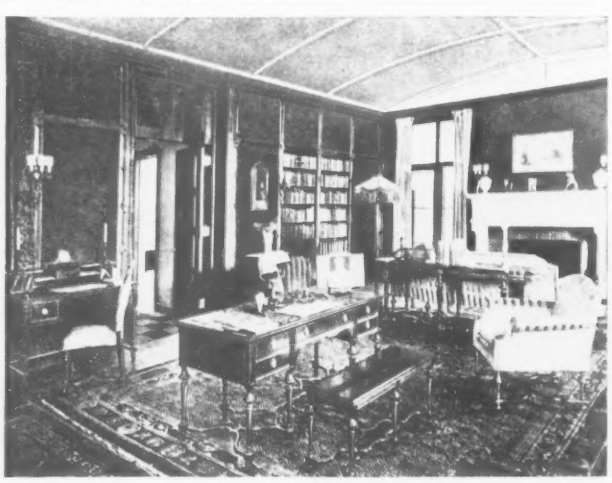
Fibre Board Authorities 307 Upson Point, Lockport, N. Y.

# Upsona

At the right is an actual photograph of the *Super*-Surface Upson Board. You can identify genuine Upson Board by the famous *blue* center.



UPSON
PROCESSED
BOARD
THE UPSON COMPANY
LOCKPORT
N.Y.



The outstanding feature of this picture is the curved ceiling. It's Upson Board! A carpenter put it up. Every day, carpenters all over the country are installing Upson Board in just as fine homes as this one.

C. H. Barrett, a contractor at Cazenovia, New York, did this very fine job of Upsonizing in the Linklaen House at Cazenovia, using 7500 square feet of Upson Board. Picture shows only a small part of the work.

# advertising boosts the carpenter-contractor

UPSON Board advertising, now appearing in The Literary Digest and other national publications, advises home owners to have their homes Upsonized *by a carpenter!*

It does not say "anyone can apply it" or "any handy man" can Upsonize his home. It says, "let your carpenter do it."

The carpenter's skill and experience are necessary to assure the most satisfactory installations of wall board. He can do *good* work with dependable Upson Board. Many carpenters are becoming Upson Board Experts. Upsonizing is profitable. It is clean work. It can be done any day of the year. It is a business-building activity because one job usually brings others.

Upson Board is a quality product. It is harder, stiffer and stronger than other boards. It is the only wall board that contains any considerable percentage of chemical wood fiber—a necessary material where strength and quality are of more importance than mere price.

Now, with the improved *Super*-Surface appearing on one side of every panel of Upson Board, it is also the most beautiful board on the market. The reverse side of every panel is smooth and lumpless and is not disfigured by trade marks or other printing. Either side, therefore, can be used.

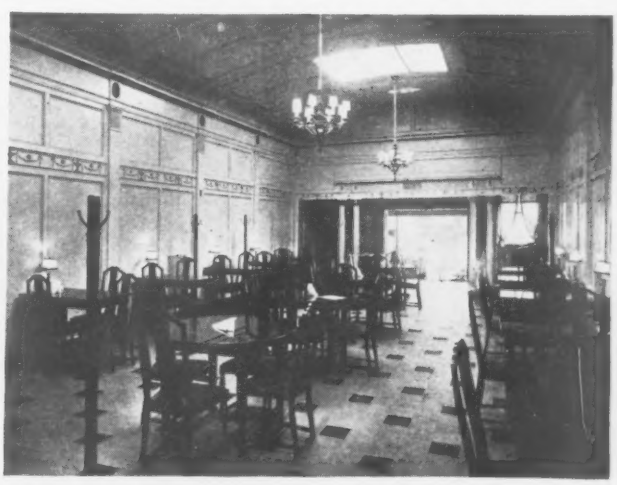
You will find it a real pleasure to work with Upson Board. It looks, works and feels like lumber. It is not heavy, like plaster board, which requires extra help to put it in place, and frequently, re-inforced construction to hold it.

**You are safe in recommending and using Upson Board for the walls and ceilings of the finest homes, as well as for the humblest cottage. You cannot afford to jeopardize your good name by using cheap, punky fiber boards, or brittle, absorbent plaster boards which so frequently create dissatisfaction, with subsequent blame on the man who installs it.**

***We shall be glad to help you get started as an Upson Board Expert. Write for "Important Directions for the Correct Application of Upson Board" and samples of Super-Surface Upson Board and Upson Fibre-Tile.***

THE UPSON COMPANY
*Fiber Board Authorities*
307 UPSON POINT LOCKPORT, N. Y.

This Upsonized office is in the plant of a prominent varnish manufacturer. Look about and you'll probably find plenty of this work to be done. It is clean, profitable work — and it can be done rain or shine!



When you visit Niagara Falls, drop into the Schwartz Coffee House and see this Upsonized room. There may be no coffee houses in your city, but there are many stores that need Upson Board walls and ceilings.

1. Nail is driven into studs, fastener is slipped over nail, which is then driven home.
2. Prongs clinch into board as it is forced onto fasteners by heavy blows.
3. Prong remains straight, holding panel from slipping to either side.
4. Prongs clinch into board, in opposite directions, forming with Prongs 2 a vice-like grip.

Fasteners are nailed to intermediate studs (or furring over old plaster) every 9 inches.

Panel is nailed at top. A piece of 2 x 4 is laid over studs, and struck with heavy hammer blows. Fasteners clinch into back of board.

Always apply ceiling first. Apply fasteners as for side walls, nail one end of panel, and drive onto fasteners, as shown.

# To help you make every wall board job satisfactory, the Upson Self-Clinching Fastener was invented

YOU know how difficult it is to do a really good job of wall boarding when you have to nail centers of panels. With some boards, a good job is impossible. Even with the best boards, it is tedious work and is seldom well done.

This fact has kept many contractors away from wall board jobs. They did not want to take a chance of having their men do poor work about which the customer could complain.

The Upson Self-Clinching Fastener, therefore, opens up a new field for many contractors. To others, it means "no more complaints." For the one big objection to the use of wall board—disfiguring nail holes in centers of panels—has been entirely eliminated.

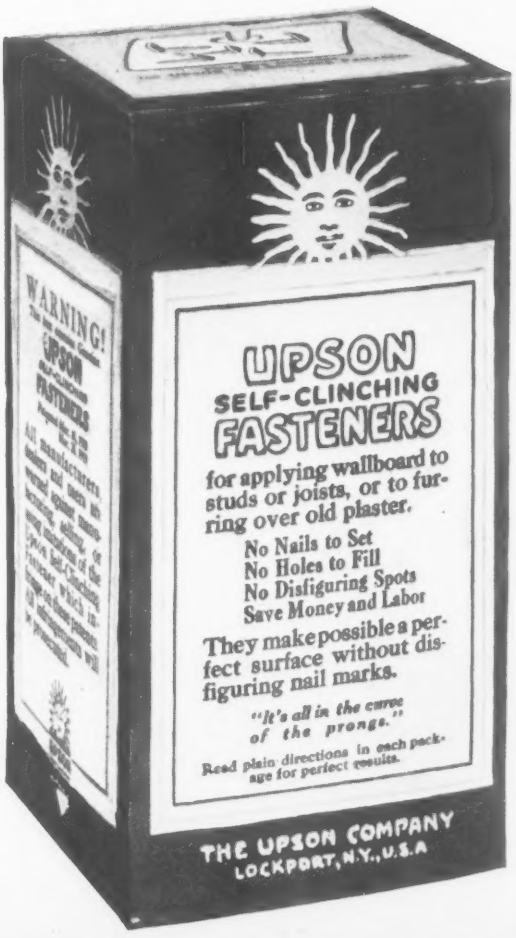
The Fastener is simple, quick and easy to use. It should cut the cost of installing wall board one half.

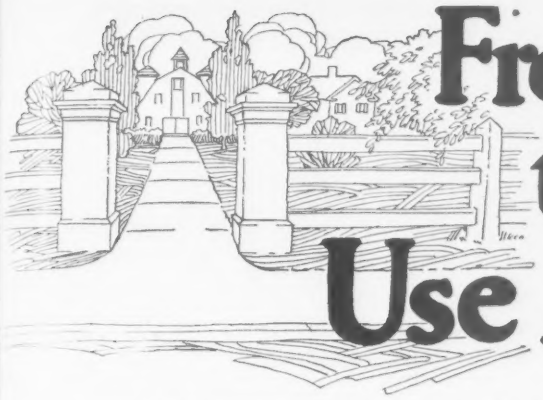
It is another Upson innovation. It has been declared to be the most important improvement ever introduced in the wall board industry. It opens up new fields for the progressive contractor. It has already increased the use of Upson Board.

Write us for free samples of this unique little device and illustrated booklet explaining in a clear, concise way just how the fastener should be used.

THE UPSON COMPANY
*Fiber Board Authorities*
307 Upson Point Lockport, N.Y.

# UPSON SELF-CLINCHING FASTENERS


WARNING!
UPSON
SELF-CLINCHING
FASTENERS
for applying wallboard to studs or joists, or to furring over old plaster.
No Nails to Set
No Holes to Fill
No Disfiguring Spots
Save Money and Labor
They make possible a perfect surface without disfiguring nail marks.
"It's all in the curve of the prongs."
Read plain directions in each package for perfect results.
THE UPSON COMPANY
LOCKPORT, N.Y., U.S.A.



# From Gate Posts to Garage Use Alpha Cement

and give your customers the most substantial, permanent and economical improvements that can be built.

The cement dwelling below (drawn from a photograph of a house at Syracuse, N. Y., built by Hueber Bros.,) is fire-safe as well as beautiful and comfortable. It saves in painting and insurance.

A cement driveway keeps people out of the mud. A cement barn holds its value and keeps the farmer's stock clean and healthy. A cement silo is a fine investment for him.

## See the Local ALPHA Dealer

These and a score of other permanent improvements are described helpfully in the ALPHA CEMENT Construction Handbook, 104 pages, illustrated. Get a copy of this valuable book from the local ALPHA dealer and use it in your conference with property owners about their new buildings and improvements. If you don't know who the nearest ALPHA dealer is, write us, mentioning *American Builder*.

**ALPHA PORTLAND CEMENT COMPANY**
**140 S. Dearborn Street, Chicago, Ill.** **Easton, Pa.**

**Battle Creek, Mich.** **Ironton, Ohio** **New York** **Boston**
**Philadelphia** **Pittsburgh** **Baltimore**

**Plants at: La Salle, Ill.** **Ironton, Ohio** **Bellevue, Mich.** **Alpha, N. J.**
**Martins Creek, Pa.** **Cementon, N. Y.** **Jamesville, N. Y.** **Manheim, W. Va.**

# LEHIGH CEMENT

## What Lehigh Service Means to You

*"15 Mills from Coast to Coast"*

means that you can get Lehigh Cement anywhere in the country any time you need it.

That you are not compelled to rely upon one mill for your requirements — there is always another Lehigh mill within shipping distance.

It means that you can depend upon an adequate supply of *uniform*, highest quality cement for any job.

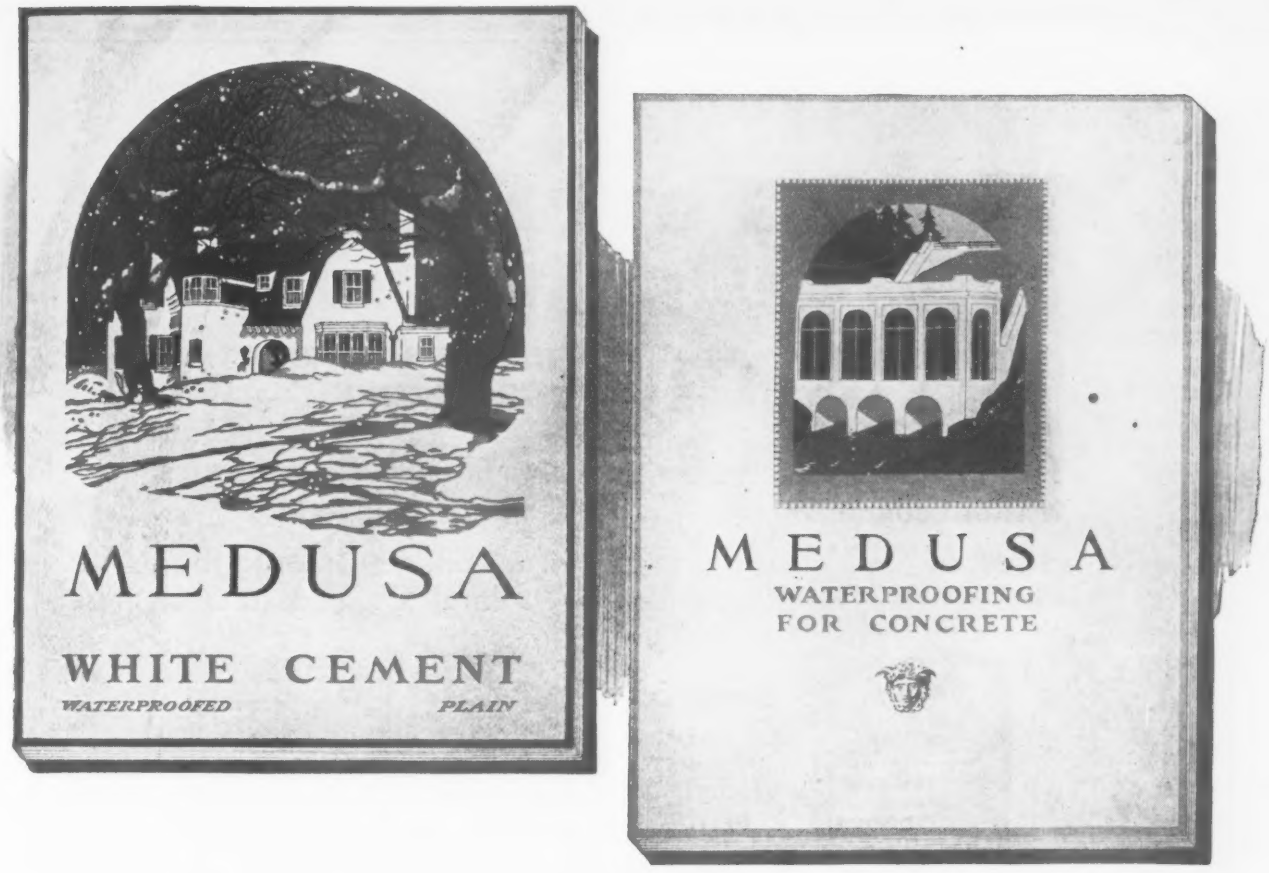
It means that the great Lehigh organization with its nation-wide manufacturing facilities is at your service.

**LEHIGH PORTLAND CEMENT COMPANY**

**Allentown, Pa. Chicago, Ill. Spokane, Wn.**

New York City, Boston, Mass., Philadelphia, Pa., Buffalo, N. Y.
Kansas City, Mo., Minneapolis, Minn., New Castle, Pa., Omaha, Neb.
Pittsburgh, Pa., Mason City, Iowa, Richmond, Va.

# SERVICE




# Here's *Real* Help For Every Builder!

Two new "Medusa" books, packed to the covers with helpful information and ideas. One tells how to build white stucco houses of lasting beauty and service, using Medusa Stainless White Cement; the other shows how to make all concrete work permanently dry with Medusa Waterproofing.

Both give complete, accurate specifications; pages of interesting pictures showing buildings of all kinds, bungalows to grain elevators; facts on every page that will *help you make money.*

**Drop us a line on your letterhead and we'll send both books with the name of a dealer near you who carries "Medusa" products in stock.**

THE SANDUSKY CEMENT COMPANY
Department G Cleveland, Ohio

*Manufacturers of Medusa Stainless White Cement (Plain and Waterproofed); Medusa Gray Portland Cement (Plain and Waterproofed); and Medusa Waterproofing (Powder and Paste).*

STAINLESS WHITE
MEDUSA
CEMENT

*Waterproofed or Plain*

# This Is Your Service—Use It!

**FREE BOOKLETS ON THE USES OF CONCRETE ARE YOURS FOR THE ASKING**

The Portland Cement Association offers you its service, without charge, on how and why to use Concrete.

Our free booklets contain complete, reliable instructions, in every-day language, on every common use of Concrete.

Some of these booklets are:

*Recommended Practice for Portland Cement Stucco*

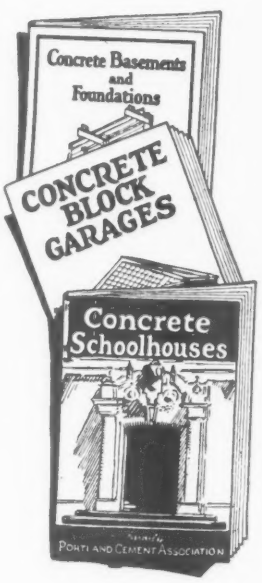
*Concrete Basements and Foundations*

*Concrete Building Block and Brick*

*Concrete Block Garages*

*Concrete Swimming and Wading Pools*

*Concrete Schoolhouses*




These are only a few. If none of these covers the job you have in mind, probably we have one that does. Write us about your work and we'll try to help you.

There are no strings on this service. It's free, and you are under no obligation in accepting it.

## PORTLAND CEMENT ASSOCIATION

*A National Organization to Improve and Extend the Uses of Concrete*

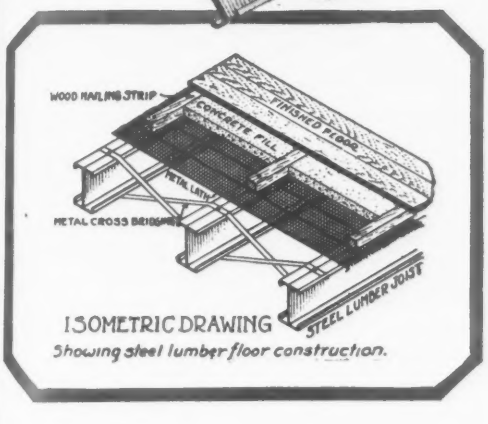
| | | | | |
|---|---|---|---|---|
| Atlanta | Des Moines | | Parkersburg | San Francisco |
| Boston | Detroit | Los Angeles | Philadelphia | Seattle |
| Chicago | Helena | Milwaukee | Pittsburgh | St. Louis |
| Dallas | Indianapolis | Minneapolis | Portland, Oreg. | Vancouver, B. C. |
| Denver | Kansas City | New York | Salt Lake City | Washington, D.C. |

# Firesafe Floors for Homes at Practically Wood Floor Cost

THINK of it! The same type of floor that has long been used in skyscrapers, at little more than the cost of combustible wood floors, is now made possible by the use of National Steel Joists.

Every home builder will at least want a firesafe first floor. It forms a firesafe blanket over the basement, where the vast majority of dwelling fires have their origin. Such floors are also dust and vermin proof. Won't sag or warp.

You, as a contractor, are often called upon to submit floor plans for homes. Design those homes with National Steel Joist firesafe first floors. They are easily embodied in plans—economical and easy to build. See detail drawing at the left. Your own men do all the work.



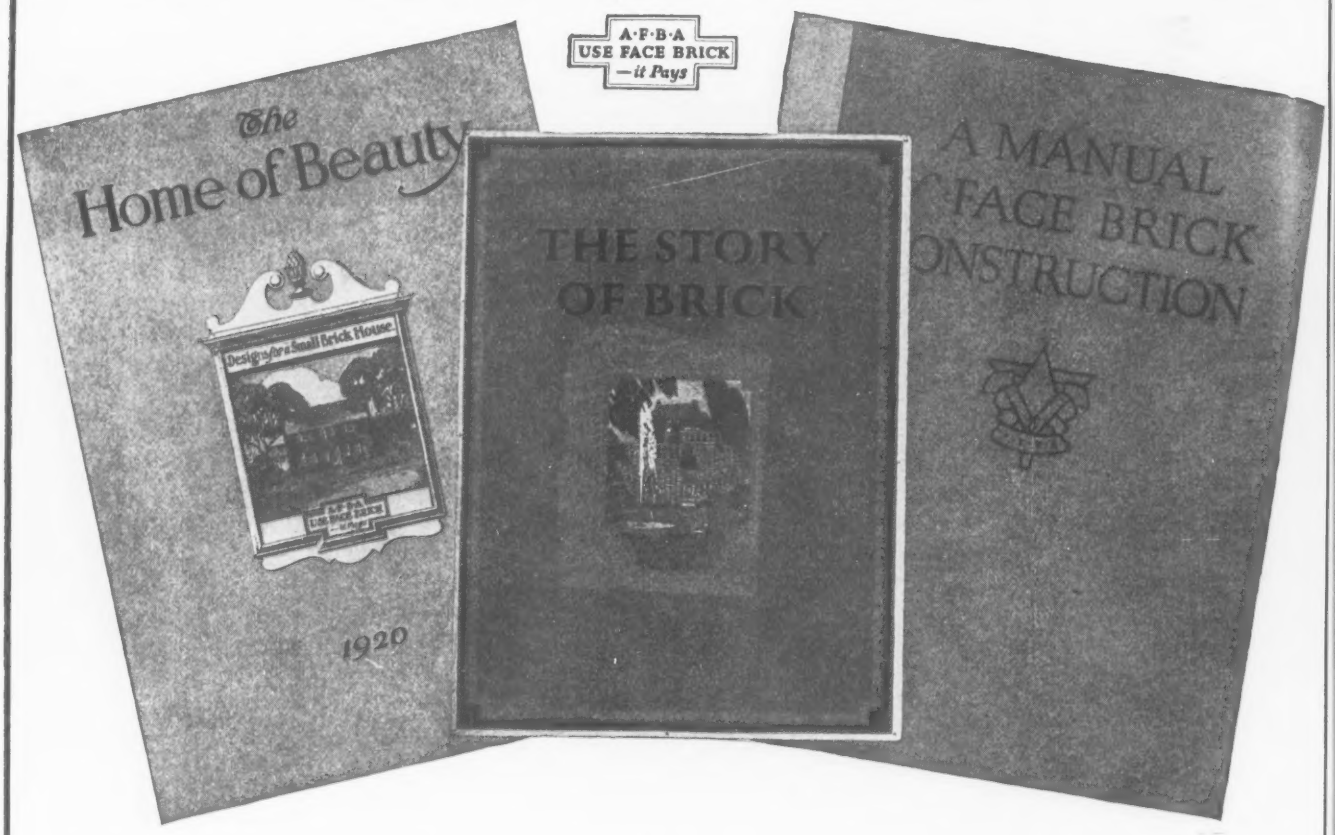

ISOMETRIC DRAWING
*Showing steel lumber floor construction.*

You will be doing the home-owner a favor by suggesting such floor design and will impress him with your knowledge of the most modern method of home construction. Millions of square feet of National Steel Joist floors are in use in stores, hotels, office buildings, garages, schools and homes.

Let us help you. Send in your plans or floor sketches. We'll show you how to embody National Steel Joist design and quote prices. Ask for special literature.

**The NATIONAL PRESSED STEEL Co.**
MASSILLON, OHIO
DIVISION OF CENTRAL STEEL CO.

# NATIONAL STEEL JOISTS




# Write for These Books

They are helping contractors and builders in every locality to obtain more building work through the many attractive house plans presented. They are full of authoritative information essential to the success and profits of your business.

### *The Story of Brick:*

A sixty-page, complete presentation of Face Brick as a construction material, its history, its possibilities and advantages. It describes brick bonds and patterns, methods of financing homes, and gives authentic cost comparisons. Beautifully illustrated. A sales manual containing all Face Brick sales features for contractors to explain to prospective builders. Will be sent free.

### *Manual of Face Brick Construction:*

An every day reference book for the practical builder, replete with detail drawings and explanations of the best methods of handling the three kinds of walls — face brick with common brick, face brick with hollow tile backing, and face brick veneer on wood studs — and all phases of Face Brick construction. Supplemented with thirty designs for which plans are available at small cost. Price $1.

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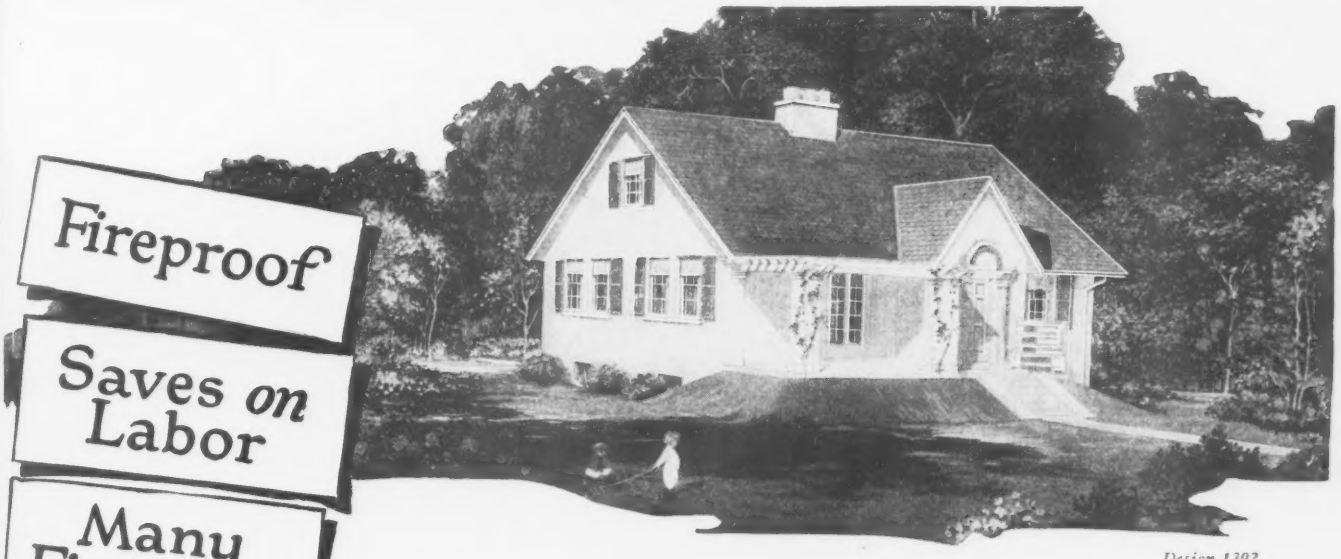
An exceptionally fine collection of designs for homes of from 3- and 4-, to 7- and 8-rooms has been embodied in this series of four booklets, each booklet being devoted to houses of a particular size. Unique presentation of designs gives a choice of two exteriors for each floor plan. Plans in reverse may be secured for each design. Nearly 200 arrangements shown. Single booklets 25c; set of four booklets, $1.

**This valuable building information and the unequalled but inexpensive plan service offered in these books is of vital necessity to every builder. Send for them, addressing Department A. 3.**

## THE AMERICAN FACE BRICK ASSOCIATION

110 South Dearborn Street, Chicago, Illinois



*Design 1392*

Fireproof

Saves *on* Labor

Many Finishes

Wears Forever

Warm in Winter Cool in Summer

Has Strength

## *and Remember, It Costs Only 5 Per Cent More Than Wood!*

HOLLOW TILE is always used by builders as quickly as they realize this fact.

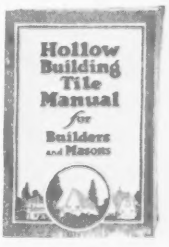
As our forests disappear, it is rapidly coming to the front to take the place of wood. You get a fireproof building at only 5 per cent higher cost.

It is the lowest priced of all permanent building materials.

Weighing only half as much as brick, it is strong enough to be used for load bearing walls up to four stories. It will carry ten times the weight ever imposed upon it in residence construction.

You will soon be using tile! Send for our free Builder's Manual and house plan folders. You can use them in your business.

HOLLOW BUILDING TILE ASSOCIATION
Dept. 163, Conway Building Chicago, Illinois




**Write for Free Builder's Manual**

It will give you the technical knowledge you want to know about tile in plain, simple language.

We will also send you our folders, illustrating our complete plan service. Residence plans furnished for $10, garages for $2, and farm buildings for $5. These plans can be obtained through any building material dealer or direct from the association.

# HOLLOW TILE

*THE MOST ECONOMICAL FORM OF PERMANENT CONSTRUCTION*

# *Armstrong's Linoleum*

## *for Every Floor in the House*

*"No other floor could be quite so handsome as Armstrong's Jaspe Linoleum, waxed and polished. After two years of wear my floors look like new. In fact, I wouldn't exchange them for hardwood or any other kind of floor," says the owner of this beautiful home.*

*Look for the* CIRCLE "A" *trademark on the burlap back*

Ⓐ

## This Floor is Modern Linoleum

HERE is an example of the growing use of modern linoleum floors in living-rooms, dining-rooms and bedrooms in fine homes. All the floors in this handsome Colonial residence in Lancaster, Pa., are of Armstrong's Brown Jaspe Linoleum.

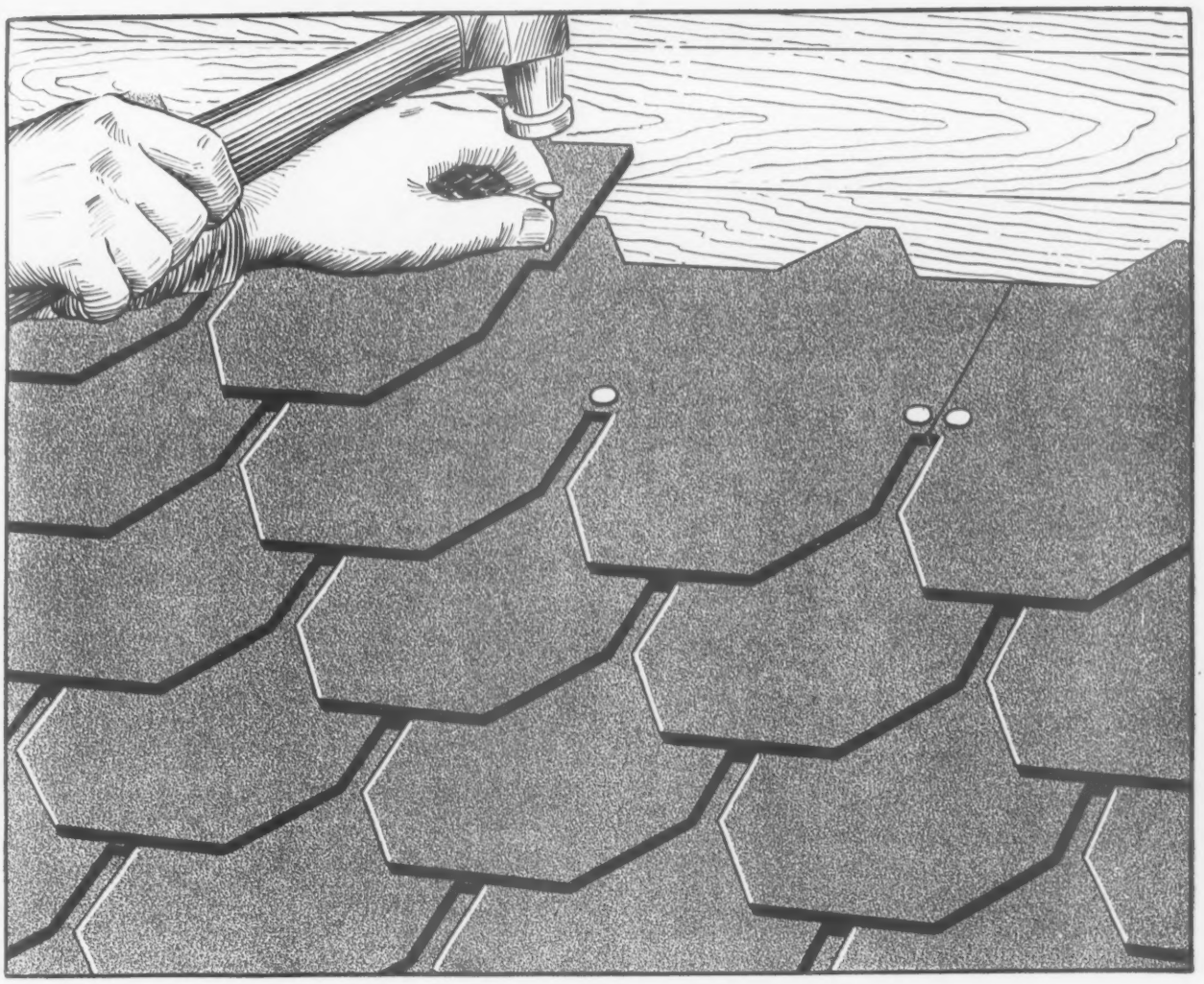
You can't imagine a better looking floor than this—a soft, pleasing brown of two tones, without a single unsightly, unsanitary crack, always found in wood floors. In the home pictured here, the linoleum floors were cemented down over a lining of heavy deadening felt, to the ordinary pine underflooring. The seams (only two in each room) are practically invisible.

As to durability, warmth, quietness and resilience, linoleum is ideal. On the score of economy, linoleum means money saved to the home builder on refinishing expense. For instance, the owner of this residence says, "I am satisfied that my linoleum floors are much less expensive to maintain than hardwood. After two years my floors are kept in perfect condition by occasional waxing and daily going over with a dry mop. On the other hand, the stairs, which are of hardwood, will have to be refinished this year."

Contractors and architects recommend permanent linoleum floors because they are less expensive than other floors, and because they are so practical. Linoleum floors, laid when the house is built, are a positive recommendation to the woman of the home, because they are so easy to take care of.

A request on your letterhead will bring you a compact handbook, "Armstrong's Linoleum Floors," which discusses the use of linoleum, particularly from the building contractor's and architect's point of view. Samples of Armstrong's Linoleum in gauges especially suited for residence work are also free for the asking.

**Armstrong Cork Co., *Linoleum Dept.*, Lancaster, Pa.**



# They Are On to Stay

When you lay Ruberoid Strip-shingles, they are on to stay. Their unusual thickness and cut corners prevent their blowing or curling up.

Felt, saturant, surface and back coating are all Ruberoid quality—the quality that has actually stood the test of time on thousands of roofs for over a quarter century. You can, therefore, unqualifiedly recommend them.

Ruberoid Strip-shingles may also be laid in various attractive designs by combining the soft tones of red or green and reversing the strips. Upon request, you can obtain a booklet showing these artistic designs in color, as well as illustrated directions for application.

There is a Ruberoid Distributor near you. Talk it over with him.

## The RUBEROID Co.

95 Madison Avenue, New York

CHICAGO BOSTON

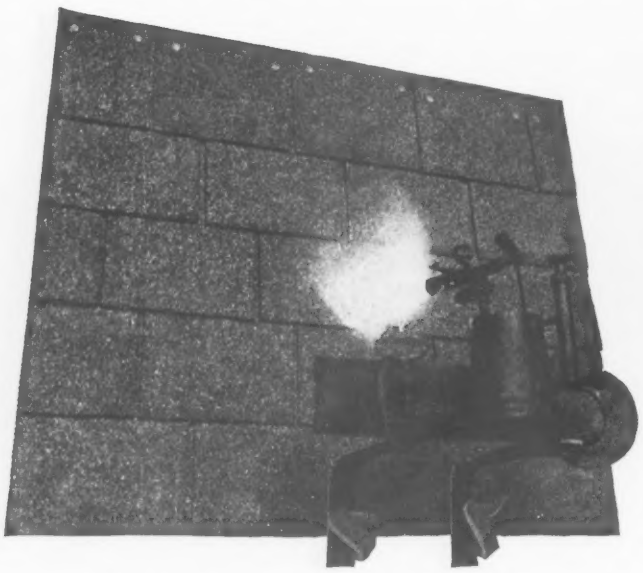
RU-BER-OID strip-shingles

SHINGLES ROLL ROOFINGS BUILT-UP ROOFS BUILDING PAPERS

PELTS PAINTS VARNISHES PLASTICS

# Will Your Shingles Stand This?

Thursday, October 20, 1921, at the Daigle Iron Works, Detroit, Michigan, the following test was made with a Winthrop Tapered Asphalt Shingle Roof. A section, laid according to standard directions and so constructed that one roof board could be withdrawn for observation of the effect of the test, was equipped with a shelf to support a blow torch in such a way that the flame of the torch would be directed against the shingles. The nozzle of the torch was six inches away from the shingles, the point at which the heat is most intense.



*This picture shows the test after the torch had been burning for 5 minutes.*

*The test was continued for 45 minutes. After the torch was extinguished, this picture was taken. The asphalt surface, at the spot where the flame struck the shingles, was somewhat melted and some of the asphalt had run, but the shingles were not burned through. The roof board was withdrawn. Small spot visible on the board was not burned nor even charred, it is merely a stain from the asphalt that softened on the underside of the shingles.*

Winthrop Tapered Asphalt Shingles give practical protection from the most dangerous fires of all, roof fires. Winthrops are fire-safe, long-lasting and add distinction to the building.

Learn about these wonderful big butt shingles. They are the only asphalt shingles that are tapered. The taper gives weight where weight is needed and it adds to the beauty of the roof.

Write for full information and sample shingles. Address the nearest factory.

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Beckman-Dawson Roofing Company
19 S. La Salle Street, Dept. No. B 18

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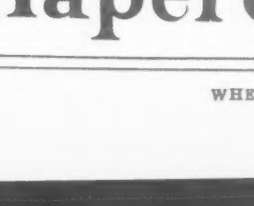
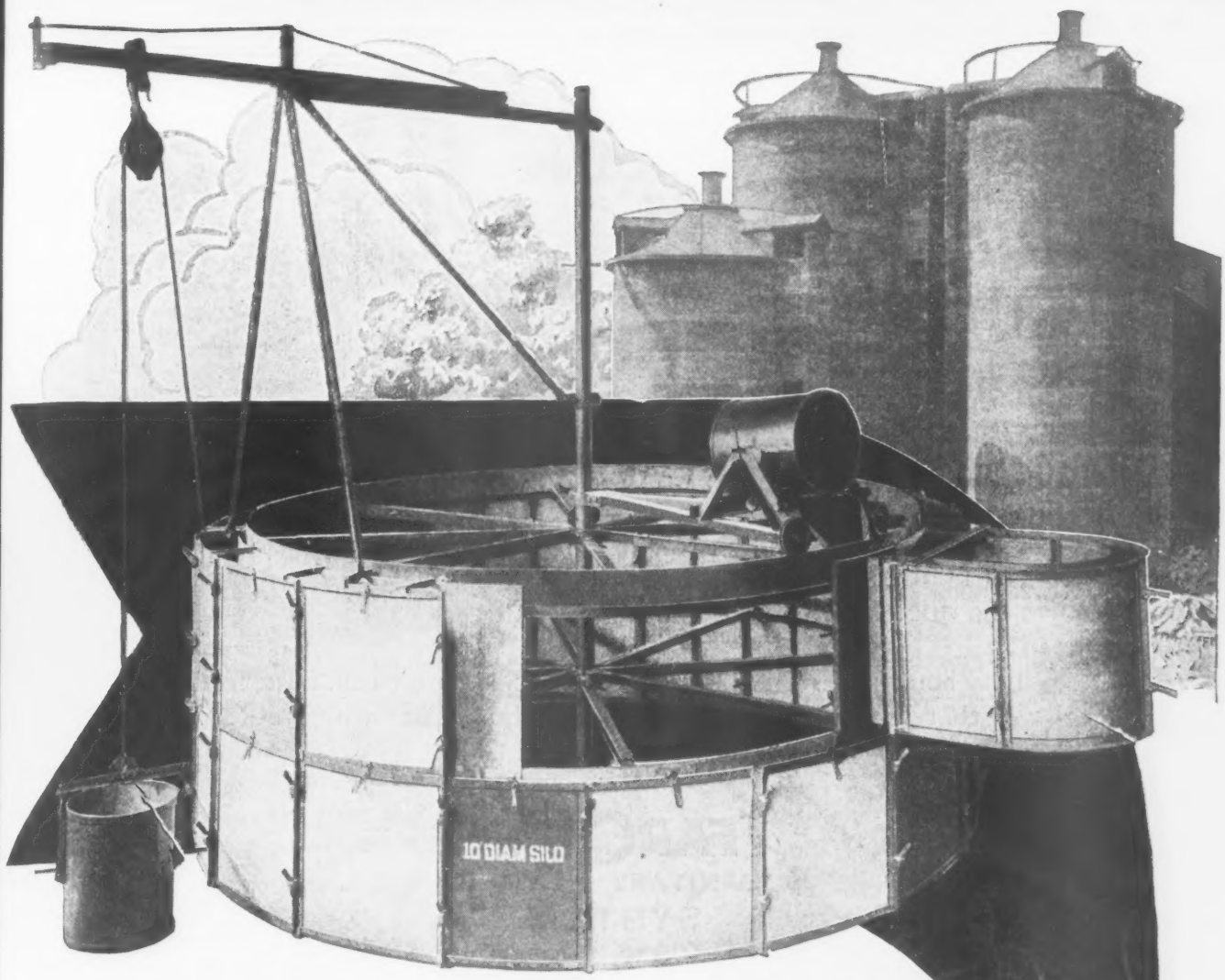



# Winthrop
# Tapered Asphalt Shingles




# Here's the Silo Outfit That Earns the Big Profits

DID you ever figure the profits of silo building? Did you ever reckon the number of silos that are built yearly on the farms around your locality? Do you know that farmers today prefer solid concrete silos to any other kind? Have you ever driven through a section where a Metaform-equipped contractor has been active, and noted that on farm after farm, for mile after mile, Metaform silos are the only ones to be seen—and that there are literally scores of them.

## Here Is a Big-Profit-Business

There is only one fast, economical way to build concrete silos. Use a Metaform silo outfit. Years of evidence from scores of contractors has proved that an outfit's capacity to produce profits is only limited by the length of season. Twenty-five silos a season is not unusual. Many contractors keep two outfits going constantly—forty-five to fifty silos is their ordinary record. ***And every job yields a substantial profit!***

These contractors use their same outfits to build grain elevators, coal-pockets, water tanks, and every other form of circular concrete structure.

Study the opportunity for a Metaform-equipped contractor in your own locality. Get full details on these outfits—learn their simplicity, speed, dependability. Write today—fill in the coupon, or attach it to your letterhead.

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Metaform

Metal Forms Corporation
1430 Booth Street, Milwaukee
Gentlemen: Kindly send me the two books on Metaform Equipment.
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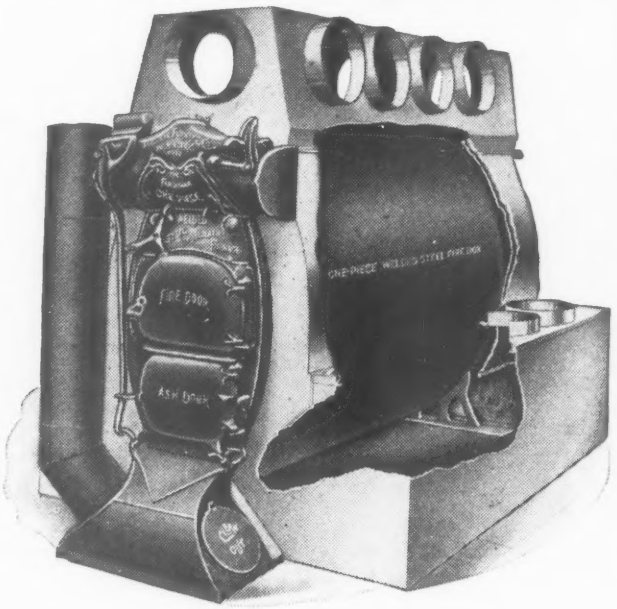
Address

# Fresh Wholesome Healthful Heat

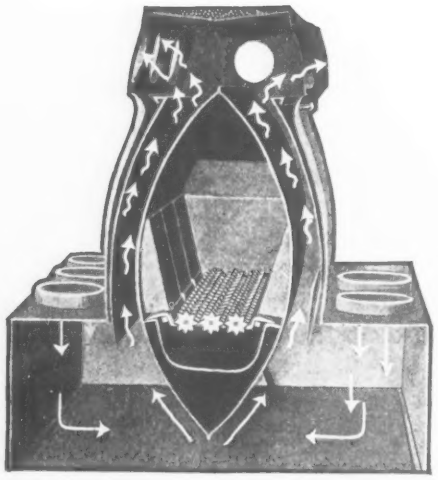


**—the kind that every home-owner wants**

Merely to fill a house with "hot air" doesn't solve the question of home heating.

That home is best heated which is supplied with clean, pure, fresh air that is gently warmed without contamination with gases and fire poisons. Such is the heat furnished by the

## "FARQUAR" SANITARY HEATING SYSTEM



This cut shows how the FarQuar Furnace is scientifically designed to gently warm the cool, fresh air instead of rendering it lifeless and devitalized through super-heating.

Old fashioned heating ideas are totally disregarded in the FarQuar System of Heating and Ventilating. And the development of the FarQuar System was not a matter of opinions, but of proven facts. Every part in the construction of a FarQuar Furnace is the result of demonstrated principles which have proven their soundness for nearly twenty years.

## High Grade Sales Representatives Wanted

In every locality there is at least one man who is always looking for better things to sell. This man is willing to listen and learn by facts, not theory. And having learned through satisfactory proof, he has sufficient faith in himself, in his fellow-men, and in what he sells, to make a success of his efforts.

That's the man we want to meet, for the story of the FarQuar Method of Heating and Ventilating will appeal to him.

***If you're that man, and can prove it, write us.***

# The Farquhar Furnace Co.

**303 FarQuar Building** **Wilmington, Ohio**

# It Assures Their Satisfaction at Moderate Cost

Buyers of those homes in which you install the Round Oak Pipeless Heating System, will have cause repeatedly to praise your judgment.

First, the buyer is familiar with the reputation of Round Oak products and from the outset will have a natural confidence in his heating system.

Second, the initial cost of the system and its installation is moderate.

Third, the splendid manner in which his home is kept comfortable on so little fuel, will immensely please him.

Lastly, the continuation of this satisfaction, year after year, will be an uninterrupted recommendation to him of your ability as a builder.

His endorsement of you to others will prove one of your most valuable assets.

Equally satisfactory, where adaptable, are the Round Oak Moistair Heating System and the Round Oak Ironbilt Furnace—for pipe installation.

There is nothing that more largely determines the satisfaction of home-buyers than the performance of their heating systems. Install only the best.

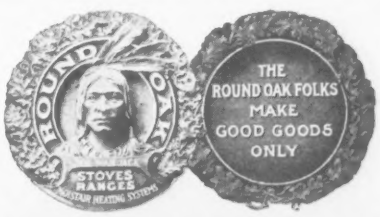
The Round Oak catalogs should be in your files. May we, quite without obligation on your part, send you copies?

THE BECKWITH COMPANY Dowagiac, Michigan

*"Round Oak Folks"* *Established 1871*

# ROUND OAK
## HEATING SYSTEMS

The Round Oak Engineering Department and the local Round Oak Dealer will gladly co-operate with you. Heating plans are furnished gratis, if you supply blueprints of the houses



# What's Your Choice?

## Would You Buy a Cracked Furnace?

### HERE'S ONE

Rough castings—piled one on the other. No fitting, but the cracks filled with cement or sand. They warp and twist—expand and contract with heat, distributing gas and dust all over the house. Limited radiating surfaces, unevenly heated; wasteful of fuel; expensive to repair.

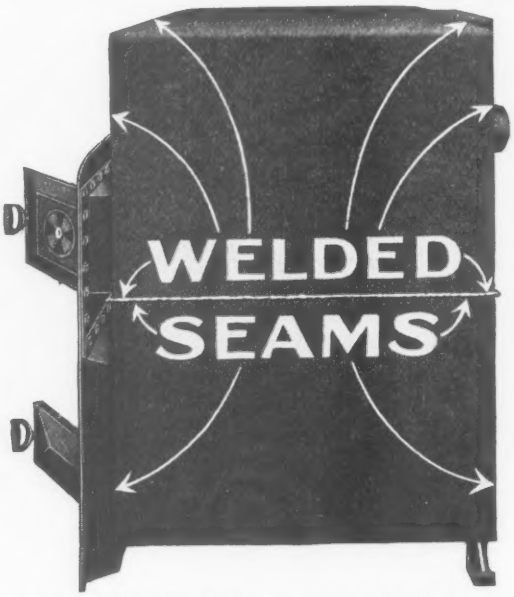
**THE ORDINARY FURNACE**

Not from any particular maker, but a type, produced, with slight modifications, by many foundries. Just the common, ordinary, cast iron furnace, which established the reputation that furnaces are dusty and dirty, and **"lives up to it."**

## The Hess Furnace Is DIFFERENT

A solid steel box—with every seam riveted and welded; sealed with melted steel. As tight as a bottle. Firebox, ashpit and grates inside. **Seams guaranteed never to leak as long as the furnace lasts.**

**COSTS MORE** (but not much more) **WORTH MORE**
**BURNS ANYTHING. DELIVERS ALL the HEAT**




**THE HESS WELDED STEEL FURNACE**

Immense radiating surface, evenly heated, but never over-heated, the firebox being lined with heavy fire brick.

Six sizes—**Pipe and Pipeless.** Ask for our illustrated booklet telling how we heat houses successfully, assuming full responsibility for success, no matter where you live.

**Dull season prices, the year's lowest, are in effect now. Contractors everywhere are taking advantage of our special free plan service, and our factory-to-contractor prices. They mean larger business and satisfied customers.**

## Hess Warming & Ventilating Co.

**1220D TACOMA BUILDING - - - - CHICAGO**

*Makers of Hess Snow White Steel Medicine Cabinets*

# The Choice of Experienced Builders

"The Furnace is the Heart of the Home"

# Double Security

The contractor who specifies the "HOLLAND" guaranteed heating systems protects his choice on two counts.

1. First, he eliminates all worry as to the quality or correct installation—because we guarantee both by the Holland Bond.

2. He insures customer satisfaction in an all important building unit—because our guarantee is transferable to the customer.

When you install a HOLLAND furnace, you can rest assured that it is the kind you would like to have in your home.

Looking after your customer's welfare pays today just as it has paid ever since the rule was originated 2000 years ago.

Let us show you convincing instances from fellow-contractors who have entrusted the keeping of their good-will to HOLLAND.

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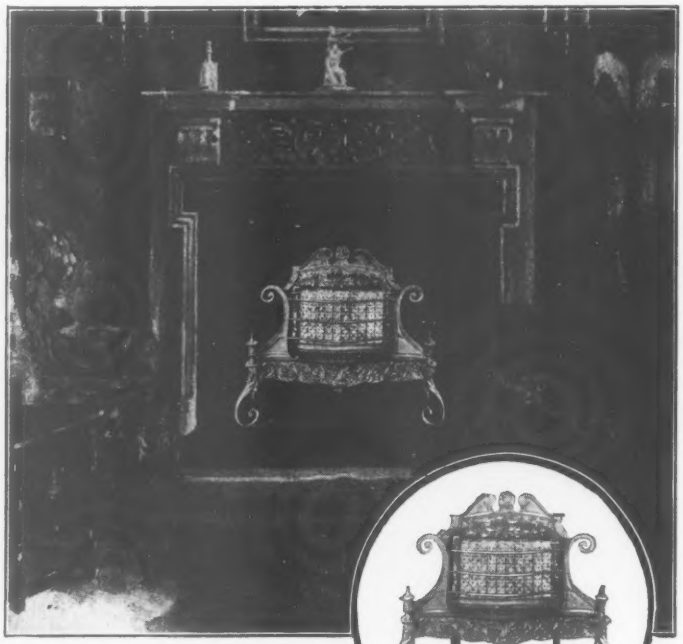

The HUMPHREY
Radiantfire
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# New Art Models Designed Especially to Meet the Requirements of Architects

"Give us an attractive line of gas fires that we can conscientiously recommend for the better homes and apartments—then you will find it easy to have them accepted universally."

It was to satisfy this demand on the part of architects and home builders that we designed the new line of art model Radiantfires. You can now have a gas fire to harmonize with every interior—that will satisfy your most exacting requirements.

Here, at last, is the way to give the home owner complete comfort and convenience. The Radiantfire has all the charm of the old fashioned open fire without any of its disadvantages. Economical; absolutely odorless. Write for booklet and information on how to install two or three completely equipped fireplaces for less than the cost of one of the ordinary type.

## General Gas Light Company
KALAMAZOO

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# Choose Hot Water Systems That Last

## Equip Every Home With a "STAR NACO" Boiler

How many home-builders—how many architects and contractors protect themselves and their work by actually knowing whether plumbing is installed to last—to serve satisfactorily year after year without costly replacement?

Every good plumber is glad to explain why one range boiler outlasts another; so, when you build, let your plumber demonstrate the "STAR NACO" boiler. Let him tell you why it serves better and serves longer. The "STAR NACO" gives you six exclusive features. Ask your plumber about it and avoid leaks and replacement.

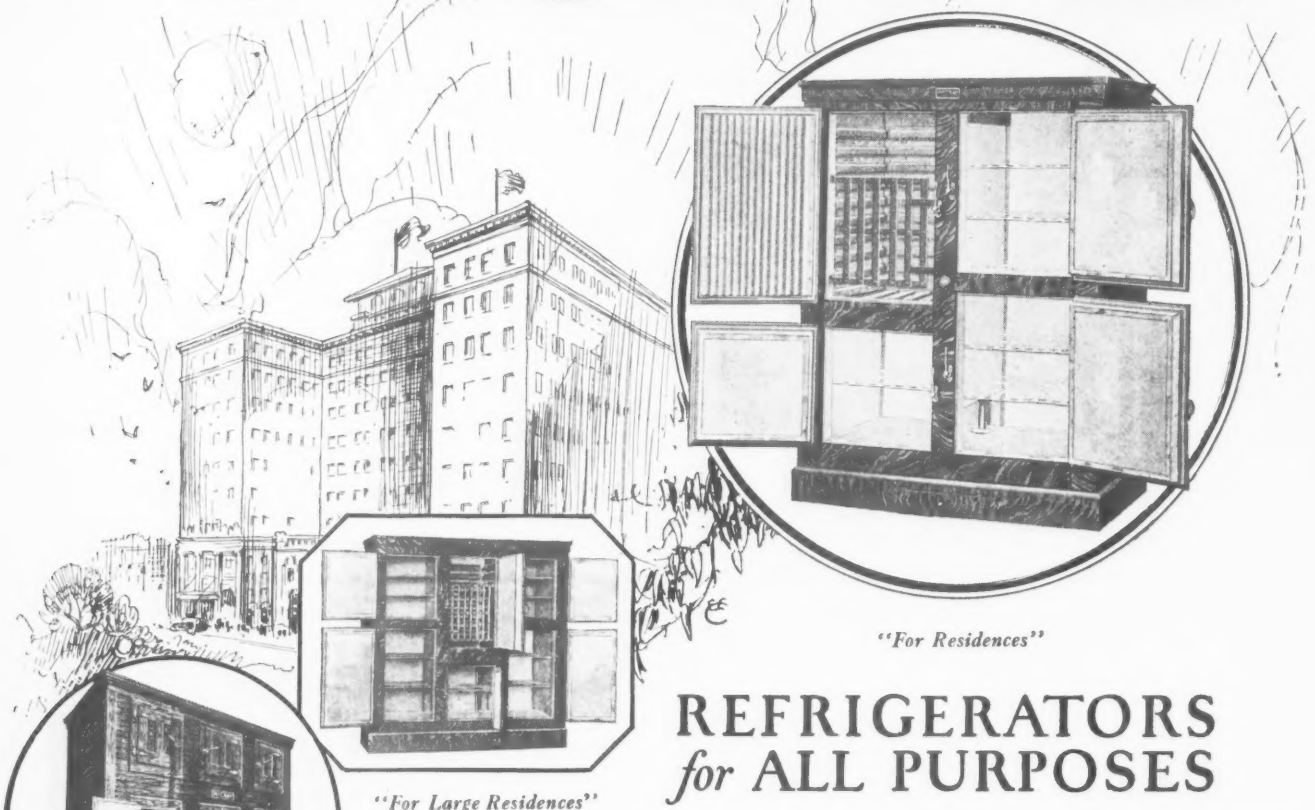
### Six Superior Features

1. Double seal seam. Riveted and welded. Double protection against leaks.
2. Copper bearing steel. Resists rust and corrosion. Makes every boiler last longer.
3. Riveted side spuds that will not twist out at time of installation.
4. Heavy coat of pure zinc spelter galvanizing put on by hot dip process.
5. Head spuds that prevent accumulation of dross by permitting drainage of spelter at time of galvanizing.
6. Heavier steel is used for greater strength.

**Detroit Range Boiler & Steel Barrel Company**
**Detroit, Michigan**

NEW YORK CHICAGO PHILADELPHIA ST. LOUIS SAN FRANCISCO

# McCRAY



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Architects especially appreciate this completeness of McCray service. For they have learned that the same efficiency, the same high quality, characterizes every type and size of McCray, whether for the residence, the store, the hotel, hospital, club or institution. And it is exceptional quality, developed in a third of a century's devotion to the problems of refrigerator building.

Wherever there is need for a refrigerator, therefore, you can specify McCray with entire confidence that it will meet the particular need of your client to his complete satisfaction.

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McCray Refrigerator Co., 2260 Lake Street, Kendallville, Ind., Gentlemen: Please send, without obligation, the books checked below:

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Name .....

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**2260 Lake Street** **Kendallville, Ind.**

*Salesrooms in All Principal Cities*

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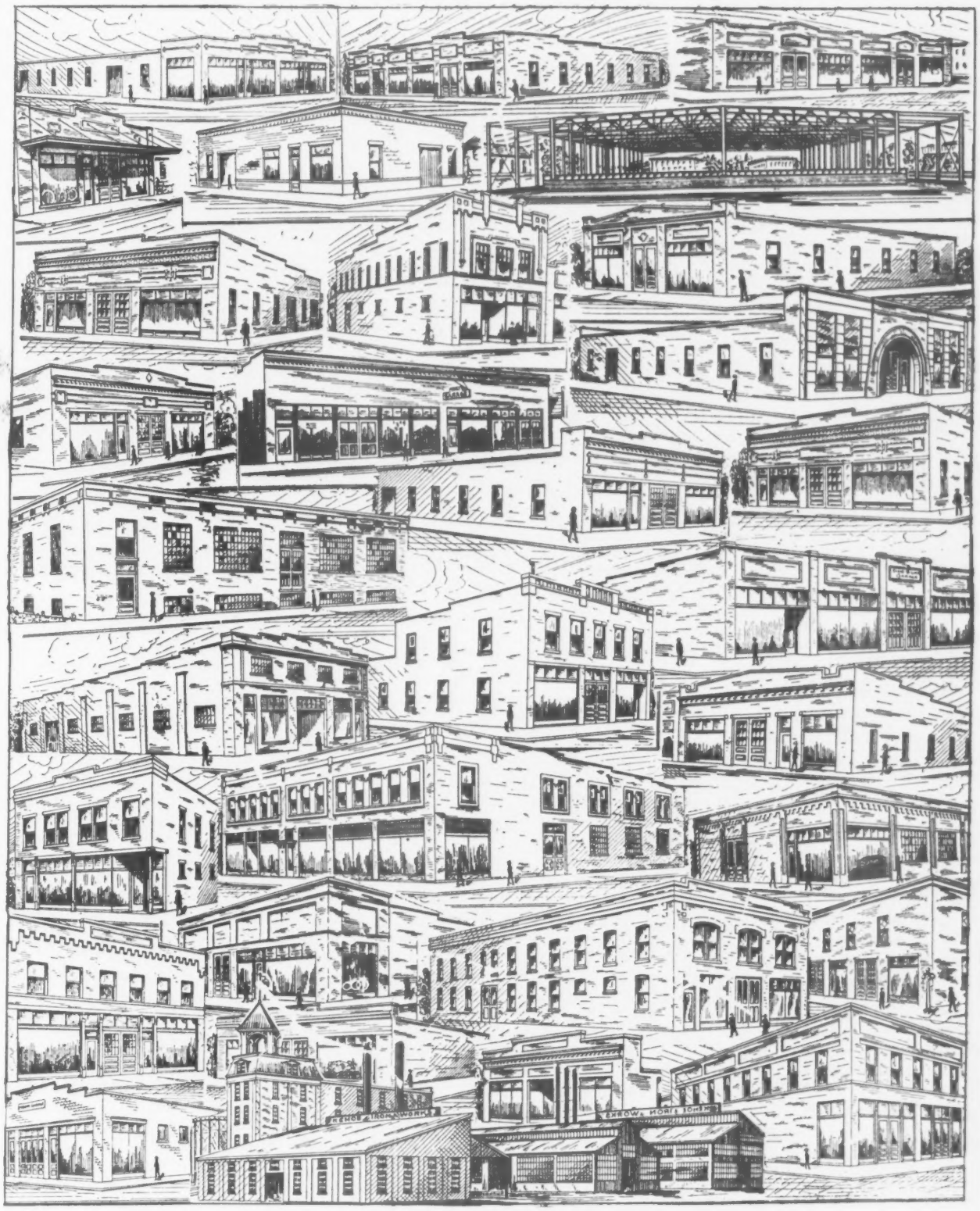
## LET US SOLVE THEM FOR YOU—EFFICIENTLY

**All Lines of International Products Are in Service in These Buildings—Designs and Estimates Free**

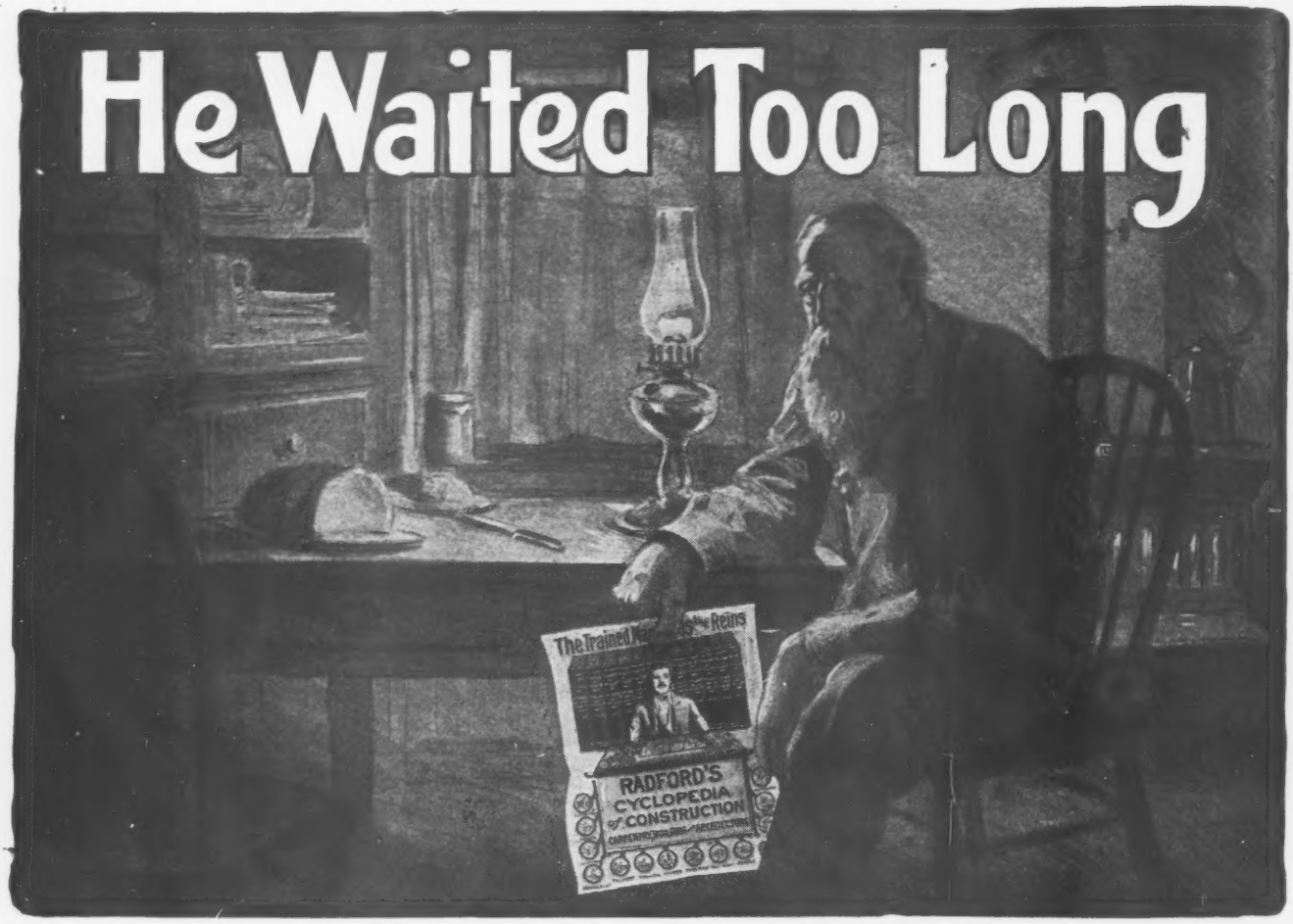


**Structural Steel and Iron, Modern Store Fronts, Complete Public Garages, Industrial Buildings, Warehouses, Coal Tipples, Highway Bridges, Reinforcing, Steel Lumber, Steel Windows, Steel Ceilings, Roof Ventilators, Cornices, Elevators, Skylights, Roofing and Siding, Millwork and Glass**

**INTERNATIONAL STEEL & IRON CO.** ADDRESS DEPT. AB **EVANSVILLE, IND.**

*Write for "Garage Illustrations" showing about 50 modern buildings designed by us*

# He Waited Too Long




"If I only had this set of books twenty or thirty years ago, they might have changed my whole life. The knowledge in the big CYCLOPEDIA would have enabled me to increase my earning power, to take on big work, paying big money, and possibly have helped me to make a fortune in the building business."

HUNDREDS of letters like the above have come to us, breathing between the lines the same pathetic story of regret—showing how hard it is for the untrained man to really get ahead in life. *The opportunity is yours NOW,* and the way is easy. *Don't wait too long. Don't wait at all.* Read the terms of our *NO-RISK, Guarantee Offer* over again, and *sign and mail coupon today.* You risk absolutely nothing, and you will reap the benefit ever afterward.

**West of Rocky Mountains and Canada, $3.00 with this order.**

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To realize their tremendous scope, you must see the books—you can get the books for five days' examination without cost to you.

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Proportions for Mixing
Aggregates (Sand Gravel, Crushed Stone, etc.)
Mixing by hand and Machine
Depositing Concrete
Concrete Troubles

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**Concrete Blocks and Brick**
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Block Machines
Number of Blocks Required
Brick and Tile Machines
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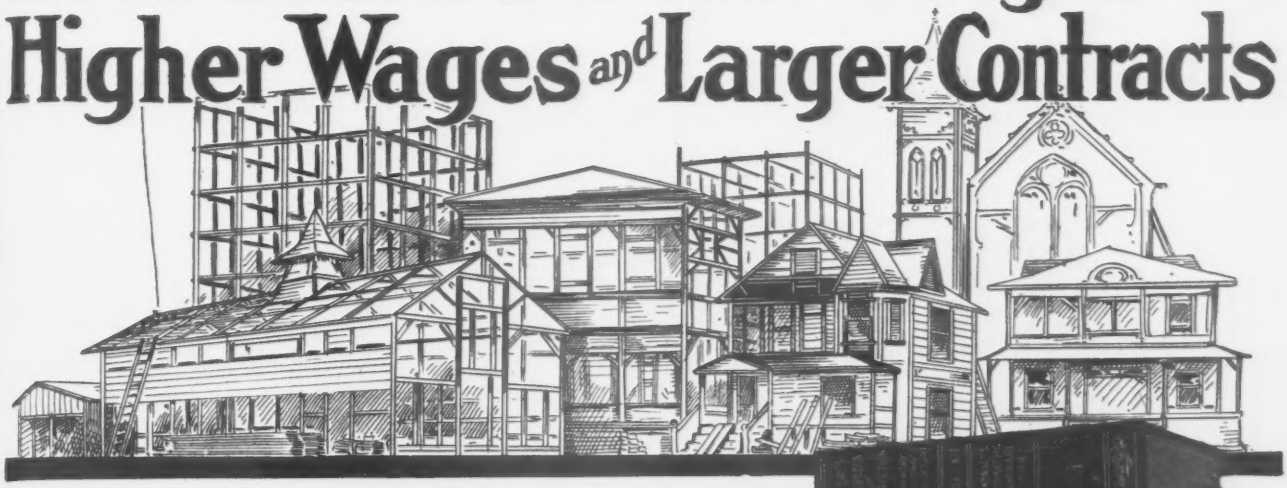

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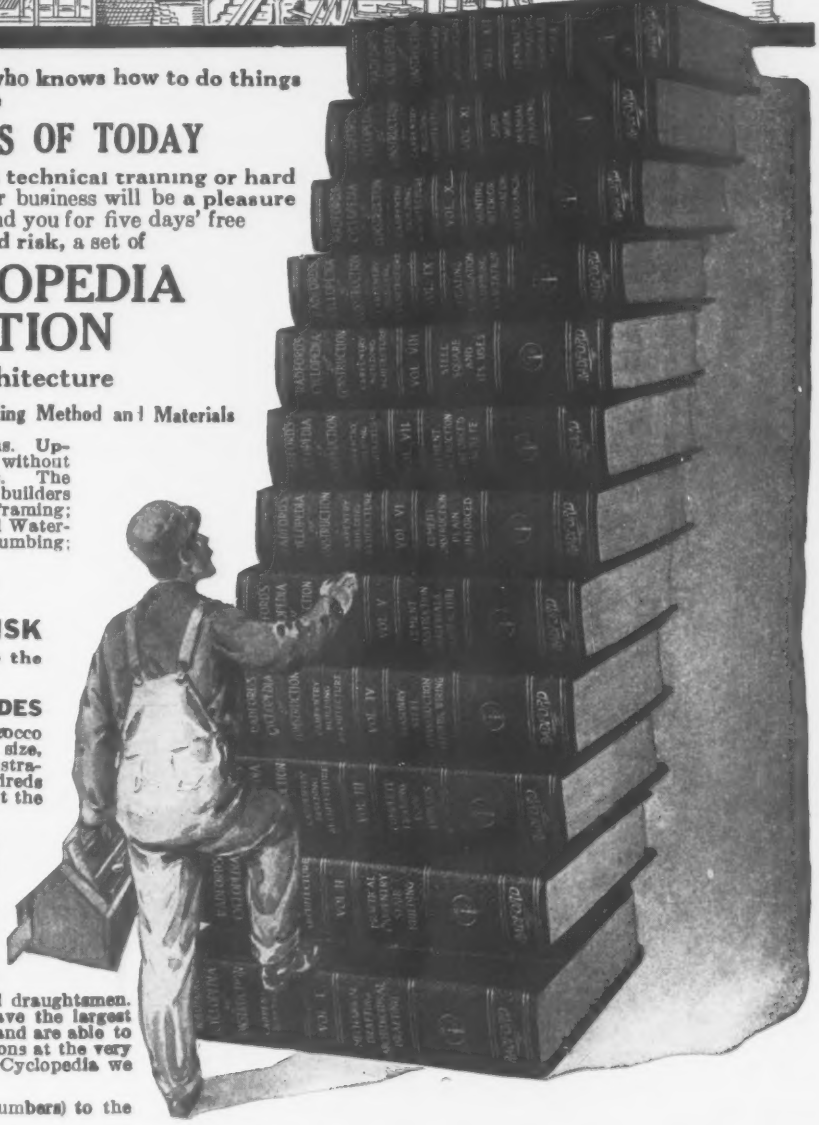

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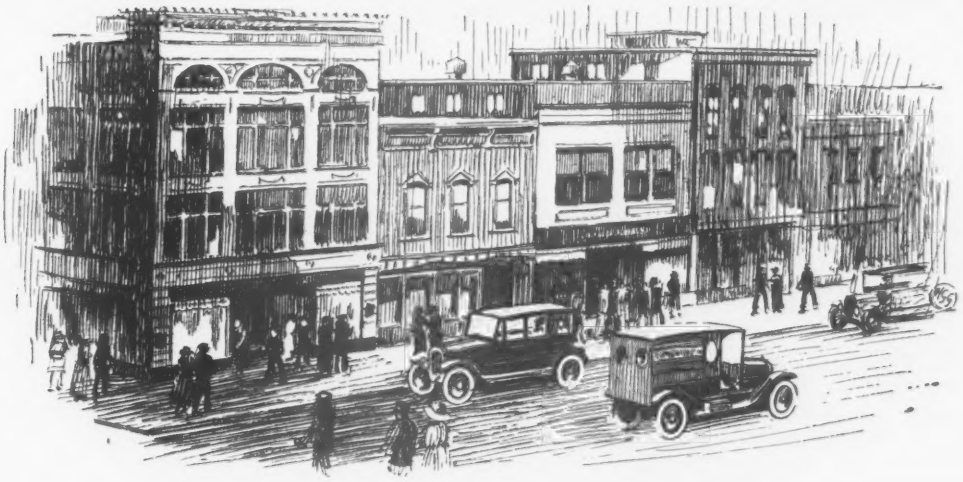

# This Is the Street of Opportunity

Every town has a street of opportunity. Your town may have several. The merchants on Opportunity street are installing modern store fronts to increase their business.

Why not become the store front builder of your town? You can, if you are a carpenter or a contractor. We will help you build up a most profitable business installing Desco store fronts.

## Easy to Sell—Easy to Install

Every merchant needs a modern Desco front. And any carpenter can install it. Desco comes to you ready for easy installation. Every detail—such as ventilation, drainage, and glass protection against jars—is provided for in the Desco construction. Simple. Strong. Attractive.

## We Help You to a Greater Profit

We have published an illustrated store front manual on designing and installing modern store fronts. It's a money making book for you. It contains the data you need to become a successful store front builder. It is a fact that hundreds of retailers from all parts of the country come to Detroit to inspect the modern store fronts, hundreds of which are built of Desco construction. This manual will be mailed to you without charge. Write us a postal today.

***See Sweet's Catalog Pages 819-827 for Desco Details***

**DETROIT SHOW CASE COMPANY**
**1654 Fort Street, W. DETROIT, MICHIGAN**

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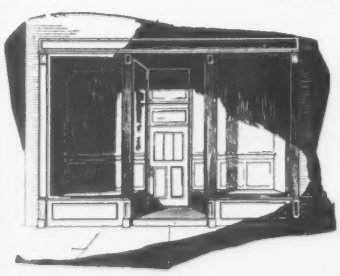
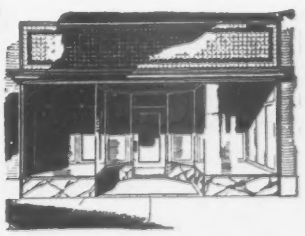
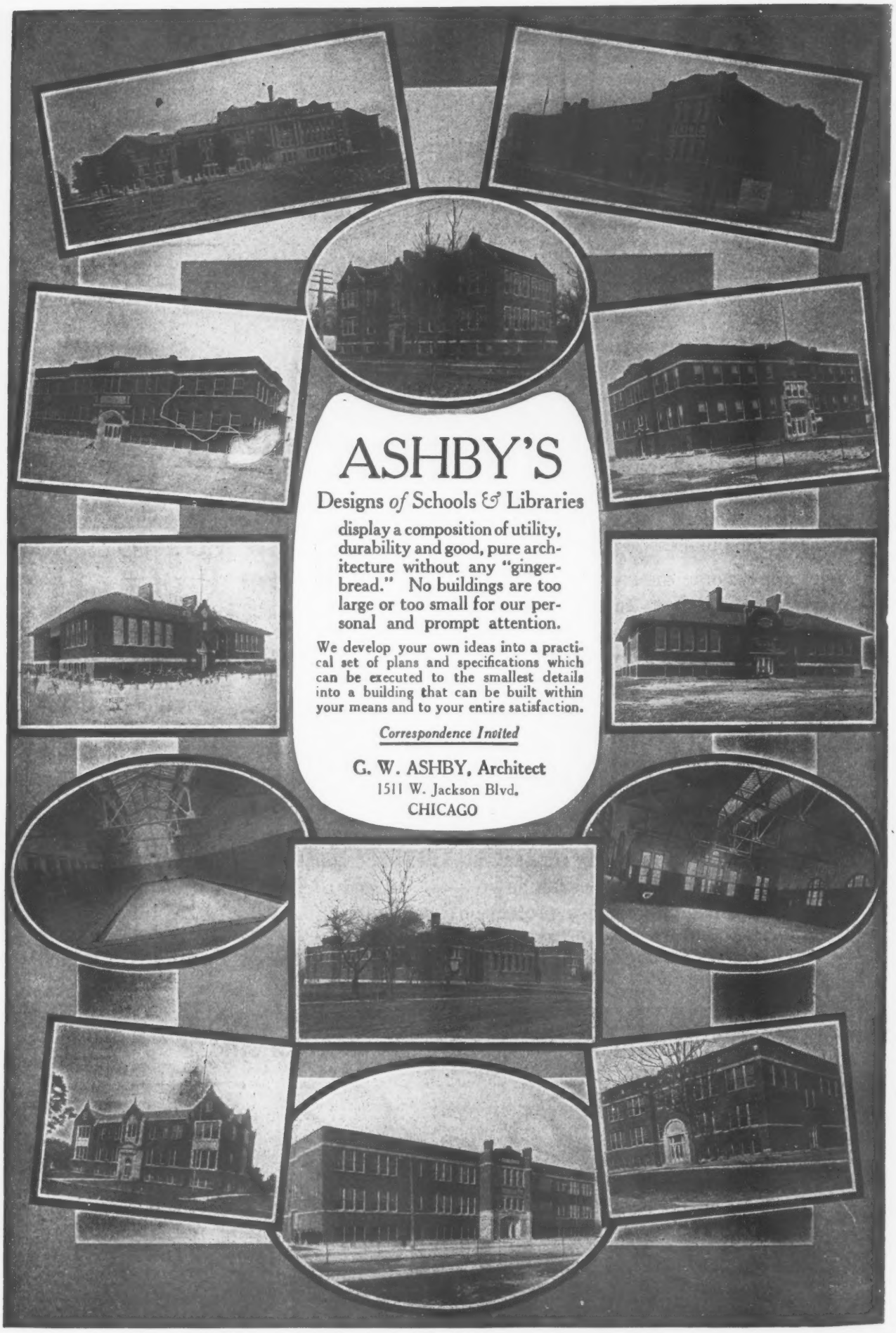


It is a simple job to tear out an old-fashioned front. Shoring up the upper structure and installing an I-beam requires little equipment. Fitting the building for the new Desco store front takes but a short time ordinarily.

# Desco METAL STORE FRONTS



Ordinary carpenters can install Desco store fronts profitably—they save time in installing Desco construction because it is simple. Be sure to get full particulars.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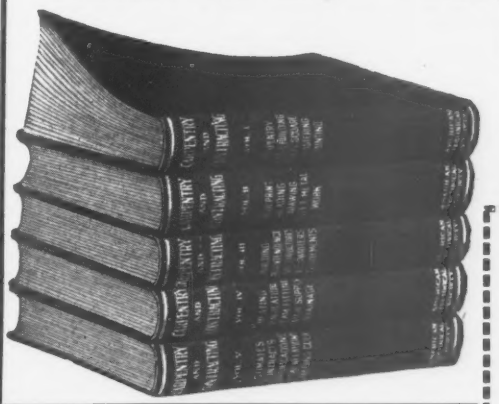

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How to Know Material and Select the Best.

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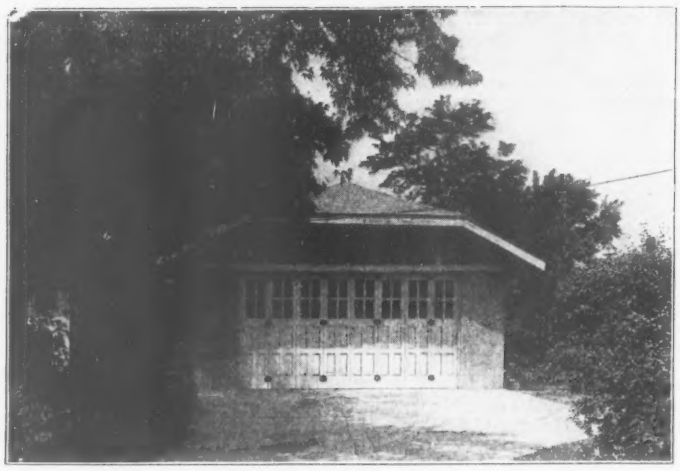

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is the one perfectly operating sliding-folding door arrangement for garages.

It has many imitators, but no equals. It is so easy to operate, so easy to install that dealers and users alike acclaim its many good features. Think how popular a garage door is that is never in the way when it is open, that never blows shut—that, when closed and locked, gives absolute protection to the cars inside the garage. Slidetite is built to do all of these things perfectly.

Remember, Slidetite is manufactured and guaranteed by its originators—the Richards-Wilcox Mfg. Co.

Surely you want to benefit in prestige and profit through the use of "Slidetite." Now is the time to go after this business. Your hardware dealer or lumber merchant undoubtedly carries "Slidetite" hardware to meet any and all requirements. Do you want a copy of "Slidetite" Garages? Write for Catalog Q-22.

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*"Slidetite" is the only door hardware that can be used on more than six sliding-folding doors in one opening*

This ad—February 25—starts a new series of powerful Beaver Board pages in the Saturday Evening Post. You know what that means! New, profitable Beaver Board jobs for live contractors and carpenters.

# Why live with cracked walls and ceilings?

Fix them up today. Simply nail big Beaver Board panels right over the old plaster. Paint the surface, apply the decorative wood strips, and at small cost convert old rooms into attractive new interiors. There's no muss or litter, no delay. Beaver Boarding is quick, clean work that can be done in any kind of weather.

Beaver Board is not only easy to apply but the result is permanent. The big panels are real manufactured lumber, built up from the long fibres of Northern spruce. Each panel is thoroughly sealed and sized by our exclusive patented *Sealtite* process. Beaver Board walls and ceilings can never crack or fall.

Ask your local carpenter or building material dealer to tell you more about Beaver Board. Or make a rough sketch of your old rooms, giving dimensions, location of doors and windows, and the type of room, and mail it to our Builders' Service Department at Buffalo. Our expert designers will prepare finished plans and send you photographs of similar Beaver Board interiors, all without charge or obligation.

Genuine Beaver Board is handled by lumber and building material dealers everywhere. Ask the one nearest you for sample and a copy of our booklet "Beaver Board and Its Uses."

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*Economical, too!*

*Don't postpone immediate repairs because you fear the trouble or expense. Use Beaver Board. The cost is surprisingly low. Beaver Board for finishing an ordinary living room will range from $15 up, depending [illegible] size of the room. Ask your local dealer or carpenter for an estimate or write to our Builders' Service Department today.*

# BEAVER BOARD

***You can't expect Beaver Board results unless this trademark is on the back of the board you buy.***

BEAVER QUALITY

## FOR BETTER WALLS & CEILINGS

*If you are not already getting your share of Beaver Board work in your locality, write today for details of our plan for securing this business.*

# Kawneer

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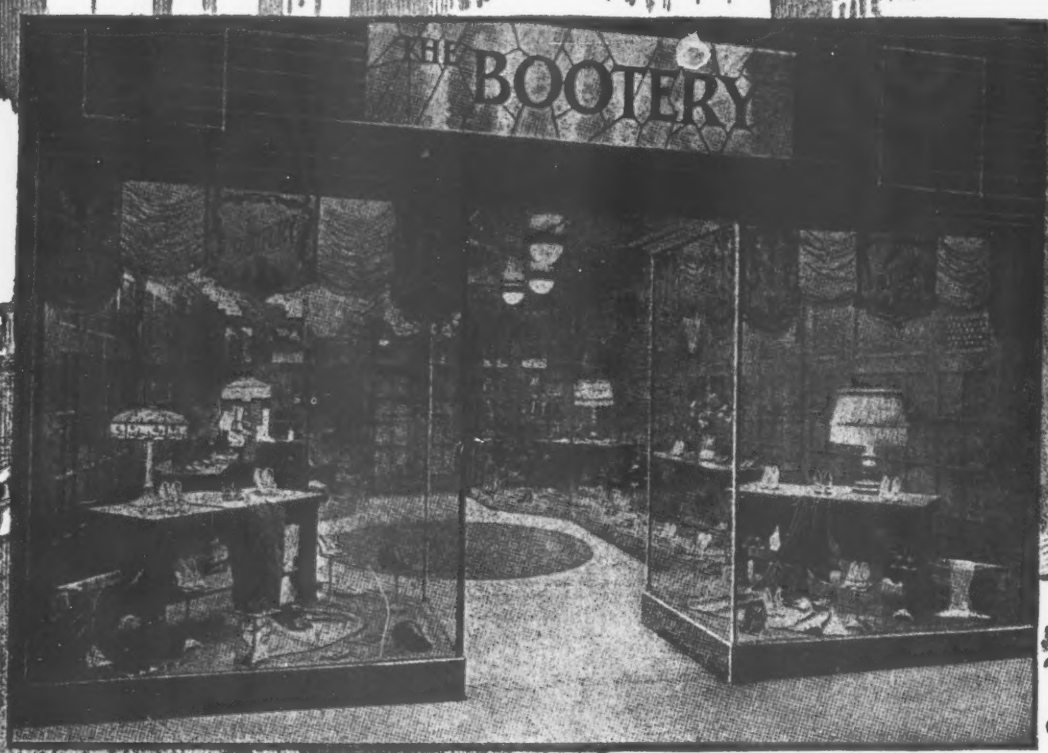
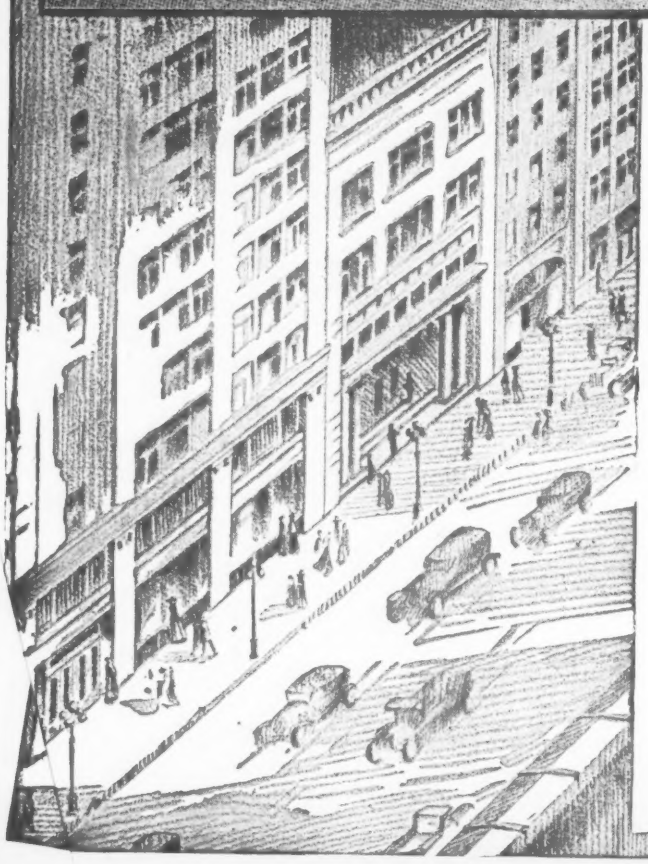
## STORE FRONTS



Resilient or Vise Like Grip on Plate Glass? Which will give your customers best service?

Any one of the 150,000 Kawneer Store Fronts successfully installed with our patented, resilient spring glass settings, points to the answer.

Contractors everywhere are building prestige by specializing in Kawneer Resilient Grip Store Fronts. Let us show you how you can make money in this line of work.

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THE Kawneer COMPANY

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***Sheetrock Is Easily Fitted***

Sheetrock saws and nails like lumber, is easily and quickly erected, and gives snug, flush joints.

Sheetrock will not buckle or warp or pull away from the nail heads. It is put up by the same carpenters who erect the framework; goes up in any weather.

***It Will Not Burn***

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Remember, too, that Sheetrock is not affected by weather extremes or by moisture. It is vermin-proof and it is permanent.

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With Sheetrock Finisher applied at the joint seams a perfectly flat, smooth surface is assured. Sheetrock walls and ceilings take any decoration the owner wants—paper, paint or panels.

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# General Motors Trucks

## *Lower Delivery Costs— Speedier Service*

"WHEN we started this business more than twenty-three years ago," recently declared Mr. H. A. Leary, owner of the Leary Coal Company, dealers in coal and builders' supplies, Kansas City "we decided that we wouldn't use or handle anything that wasn't the best.

"On that basis we knew we couldn't go wrong in buying trucks from the General Motors Truck Company, one of the biggest and most substantial corporations in the world engaged in the exclusive manufacture of motor trucks. So we bought a fleet of five 5-ton GMC trucks. We haven't been sorry we did so. Not for a single moment. They give us excellent service.

The name of Mr. Leary's company is really misleading, for, although it was started as a coal company, it has grown to be one of the largest and most prosperous firms in Kansas City handling builders' supplies of all kinds. For this reason his experience with GMC's will be of particular interest to builders and contractors as their hauling problems are of the same general character.

### *100 Tons Daily*

The five 5-ton GMC trucks used by Mr. Leary handle about one hundred tons of coal and building material each working day. They are on the go continuously and average about four miles of travel for each ton delivered.

Owing to the variety of products handled by the Leary Company, Mr. Leary keeps detailed records relating to the delivery cost per ton with GMC equipment. In this relation he says: "Although many of our deliveries are miles away, we have found our total delivery costs with GMC to be but ninety-five cents per ton. Quick service, getting materials to the contractor on the job in the shortest possible time is the thing that has made our business proper.

"There is more to confidence in trucks than the mere ability to run them at a low cost per mile, and that is by dealing with a company that has adequate service facilities to keep your equipment running all the time, and a sincere disposition to treat you with the utmost fairness. These are things I purchased with my GMC trucks that cannot be figured in any cost record system —but they are things that count for a whole lot in helping any firm spell 'Success'," he declares.

This is one of the many reasons for the growing preference among wise motor truck users for the GMC. The GMC engine was designed exclusively for motor truck usage with full appreciation of all the essential qualities necessary for the success of such an engine under all conditions—economy of operation—surplus power—and quick accessibility for readjustment and replacement, with the consequential lowered costs for this work.

### *Mechanism Accessible*

As an example of the practical accessibility of GMC construction it is possible to remove a cylinder sleeve from the GMC engine and replace it in a few hours. This eliminates the heavy repair expense that follows when the entire cylinder block must be taken from the truck and re-machined, as in the case of the common type of engine.

Each cylinder in a GMC engine is a separate sleeve which is pressed into place in the cylinder block. The sleeves are machined on both sides to accurate thickness and the expansion and construction of the walls under temperature changes, is consequently spread evenly, preventing the cylinder from becoming out of round and causing excessive wear.

*GMC Removable Cylinder Sleeves*

### *No Lost Compression*

Moreover, this type of construction insures an absolute and continuous fit of piston rings and pistons, preventing any loss of compression as is the case of the common type of engine when cylinders become out of round.

This is only one of the many features of GMC construction that truck buyers everywhere appreciate because they insure more and better motor truck service at a lower cost for maintenance and operation.

Furthermore, with all these improvements, substantial reductions have also been made on the complete line of GMC trucks from one to five tons capacity which increase still further their practical economy for all hauling requirements.

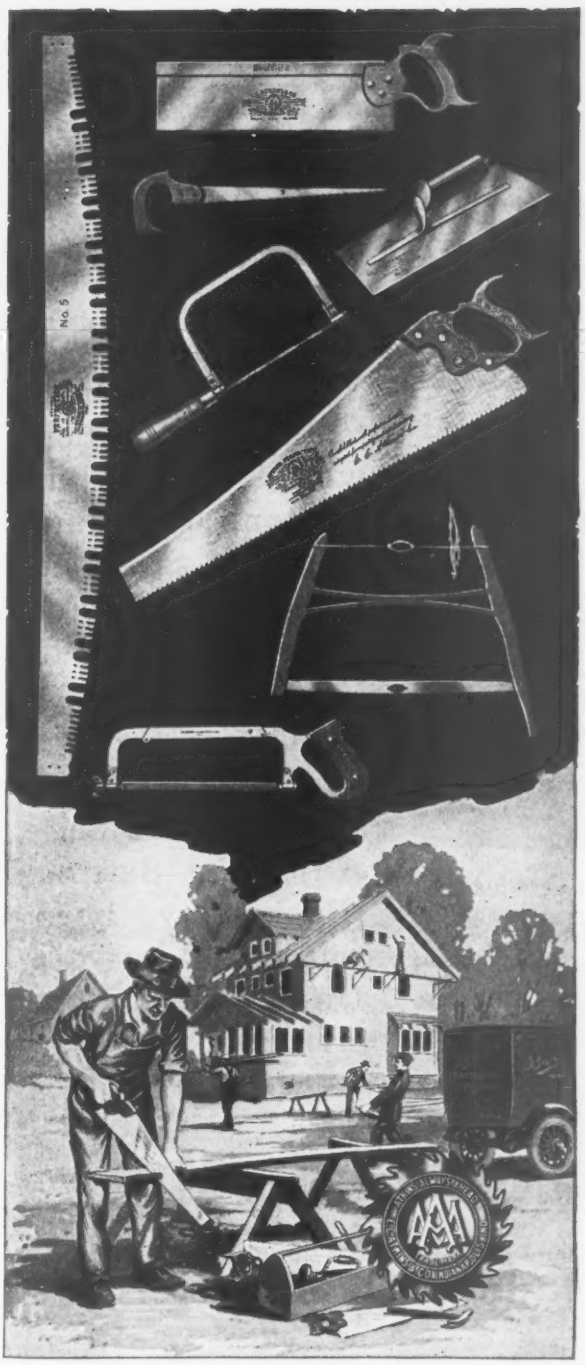
**GENERAL MOTORS TRUCK COMPANY**

*Division of General Motors Corporation*

PONTIAC, MICHIGAN

***Dealers and Service in Principal Cities***

# ATKINS SILVER STEEL SAWS



## *Carpenters, Contractors and Saw Users!*

Ever try to saw a board with a Meat Saw? Or—let us put the question differently—have you ever tried to do a job without the proper tools?

The man who thinks he is saving money because he puts off the purchase of an

**ATKINS SILVER STEEL SAW**

or tool—that fellow is figuring backwards; he's not a money maker; he's his own worst enemy.

It's up to us to furnish you with the proper saws and tools. They aren't luxuries for the man who needs them, but real necessities.

*Write for "Saw Sense"—The Book of Facts. Send 25 cents for Carpenter's Nail Apron and Souvenir Saw Comb. Mail to us at Indianapolis.*

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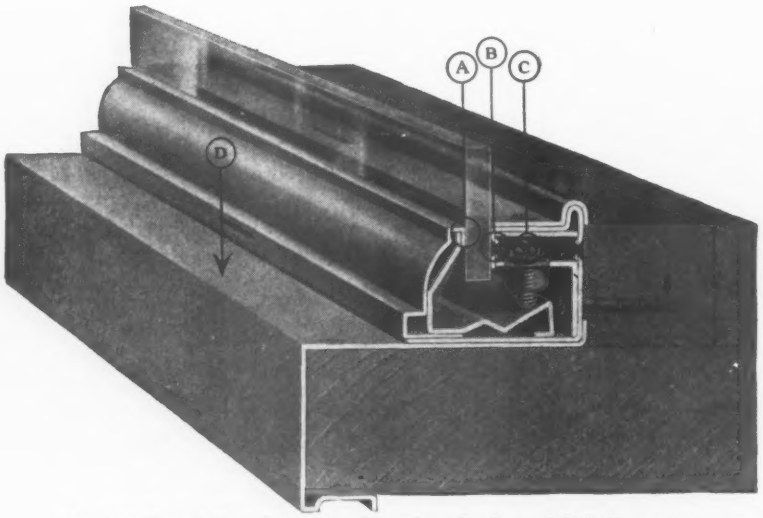
# The builder can help—

You can help save millions of dollars annually. Plate glass breakage through defective installation is one of *your* problems. Such breakage can be eliminated through right construction. Right construction is that which measures up to the following—

## Glazing Specification

**All Metal Sash, Corner Bars, Division Bars and Self-Adjusting Setting Blocks Used in Store Fronts Must be Approved by the Underwriters' Laboratories.**




*No. 110 Zouri Combination Key-Set Sash and Sill Covering*

A is the point where the outer member presses against the glass, when the delicate watchlike turning of the key at C brings the glass automatically into contact with the rabbet of gutter B sliding on the anti-friction Murnane Self-Adjusting Setting Block.

The Sill Covering D extends from the inner side of the rabbet to the lower edge of the face, eliminating joints—perpendicular screws or nails—positively protecting the wood against deterioration, for leakage is impossible.

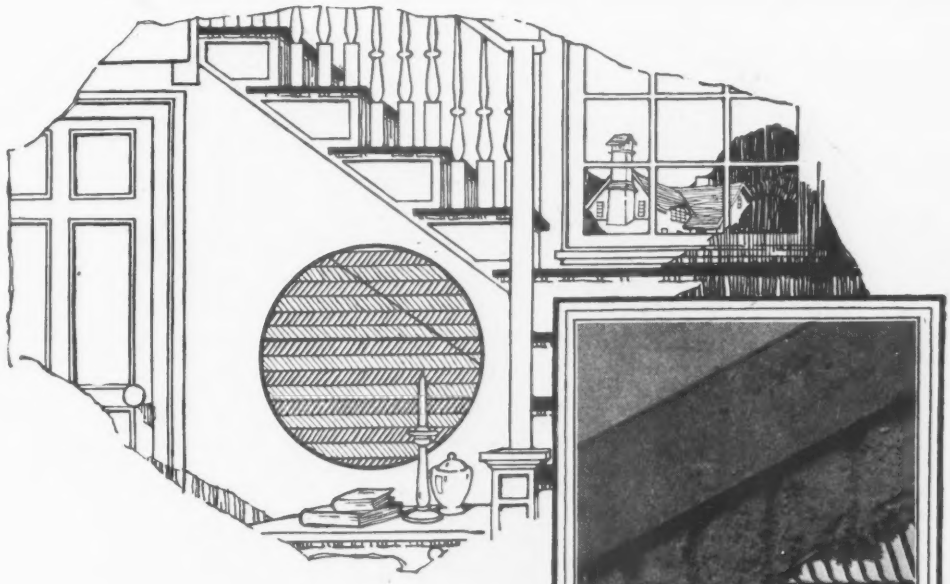
Strict adherence to this specification would mean that millions of dollars would be saved—to the insurance companies as well as to the store owners.

All Zouri Key-Set Sash, Corner Division Bars and Self-Adjusting Setting Blocks have been approved by the Underwriters' Laboratories.

**Zouri Drawn Metals Company**

**Factory and General Offices**

**1622 EAST END AVE. - CHICAGO HEIGHTS, ILLINOIS**



# Protect the Stairs from Fire

The only fire escape in a house is the stairs. They must be protected. Fire comes upward. Protect the under side of the stairs and you protect all. Use metal lath and plaster.

For a dependable, fire-resisting lath use Herringbone. It spans sixteen inches. The increase in cost is but a small fraction of the increase in value.

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*Herringbone — strong, rigid, easily handled — has met the demand for an economical, practical, fire-retardant lath*

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# What this "key" means to you—a builder

## GENASCO LINE

Trinidad Lake Asphalt
(For shingle and roofs)
Standard Trinidad Built-Up Roofing
Barrandon Road Asphalt
(For road building)
Genasco Roll Roofing
Genasco Sealtec Shingles
Genasco Latite Shingles
Genasco Vulcanite Mastic Flooring
Genasco Acid-Proof Paint
Genasco Industrial Paint
Genasco Boiler Paint
Genasco Asphalt Putty
Genasco Asphalt Pipe Coating
Genasco Asphalt Fibre Coating
Genasco Tile Cement
Genasco Waterproofing Asphalt
Genasco Waterproofing
Felts and Fabrics
Genasco Battery Seal Compound
Genasco Mineral Rubber
Genasco Mineral Spirits
Genasco Base Oils
Genasco Flotation Oils
Genasco Motor Oils
Genasco Soluble Oils
Genasco Saturated Asphalt Felt
Genasco Deadening Felt
Genasco Insulated Paper
Genasco Red Sheathing Paper
Genasco Stringed Felt
Genasco Wall Lining
Kennedy Road-building Machinery

It's just a metal strap—a simple device on each GENESCO Latite Shingle—*but it solves your asphalt shingle problem at last.*

No more warping or curling of shingles by the sun. No more flapping or turning up by the wind. No openings for rain, snow and cold to get through.

GENASCO Latite Shingles *are locked tightly to each other.* They *lay tight* and *stay tight* in all kinds of weather.

The success of GENASCO Latite Shingles has been unprecedented in the roofing trade. Builders are enthusiastic. They say every Latite roof is a salesman—a business getter.

The great beauty, low cost and interlocking feature of these wonderful shingles have a tremendous appeal to building owners.

And their durability and weather proofing qualities insure you of the continued confidence and patronage of the clients you serve.

Write at once for illustrated booklet describing Latite Shingles and other ready roofings of the famous GENASCO LINE. Also check off on the adjoining panel any other products in which you may be interested.

New York
Chicago
Pittsburgh

THE BARBER ASPHALT COMPANY
PHILADELPHIA

St. Louis
Kansas City
San Francisco
Atlanta

# Genasco

**Asphaltic Roofing, Flooring, Paints and Allied Protective Products**

Mr. Builder—
ARE you familiar with the RITE-WAY method of saving closet space in your floor plans?
By using RITE-WAY garment fixtures you can save one-half the closet space and gain a decided improvement over the old style closet. This method requires only space enough for the clothes themselves.
In some plans you can save more than $100.00 by cutting down the size of the floor plan. Figure it out on your own plans. How much space would the use of closets 20"x30" save?
The RITE-WAY kills two birds with one stone. It not only saves space but it provides a much more convenient wardrobe. You don't have to step into a poorly lighted closet to select your clothes. Just pull the easy sliding hanger out into the light and air and PRESTO! the clothes are set before you in perfect condition.
Write today for full information
Let us show you how you can take advantage of this new idea in closet construction. This is something worth while looking into.
Write today to
LAWSON
Manufacturing Company
230 West Superior Street Dept. A-782 CHICAGO, ILL.
The RITE-WAY
GARMENT FIXTURE

# STANLEY
## TOOLS

"Stanley Tools for a better job!"—This has been the consensus of opinion among master carpenters and users of good tools for over half a century.

The design of many of our special tools are based on suggestions from our customers. Such suggestions are graciously received—and promptly acted upon.

Stanley Tools are sold throughout the civilized world. And stocks are carried by all leading jobbers and dealers in hardware.

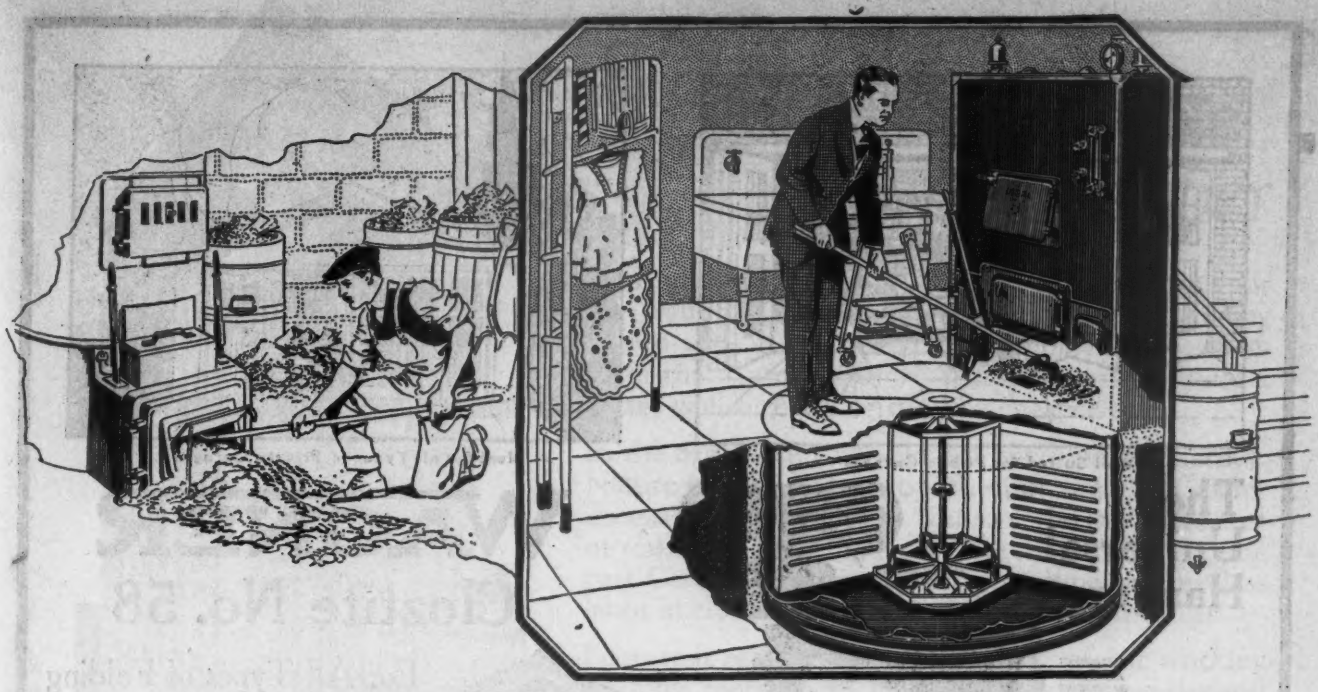
*Write for Catalog A-3 illustrating the complete line*

**The Stanley Rule & Level Plant**
**The Stanley Works**
**New Britain Conn.**

New York Chicago San Francisco
Seattle Los Angeles

*Manufacturers of Wrought Hardware and Carpenters' Tools*

STANLEY S.W.



# ASHES

## How Do You Dispose of Them?

Do you still shovel ashes out of your furnace in the old way and store them in dirty, unsightly cans and barrels, or—do you dispose of them in the new, clean Sharp way?

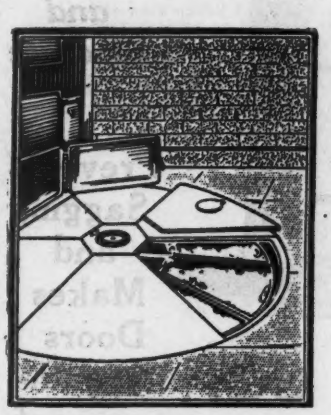
### The Sharp Rotary Ash Receiver

eliminates those swirls of grimy ash dust that filter all through the house and settle over woodwork and furnishings. It does away with the tiresome, disagreeable task of shoveling ashes and keeps them out of sight till you are ready to remove them from the house.

When you install the Sharp Rotary Ash Receiver you have solved the problem of ash disposal for all time. It is simple to install, easy to operate and will last as long as the building.

Its installation is evidence of thoughtful planning that adds comfort and convenience to the home you are building.

The cost is slight when the lasting satisfaction it insures to the owner is considered.

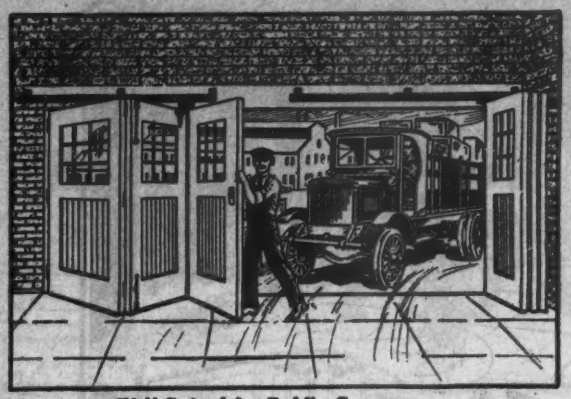


***The Sharp Rotary Ash Receiver consists of a set of steel cans mounted on a revolving frame located under the heating plant. One can is always under the ash pit.***

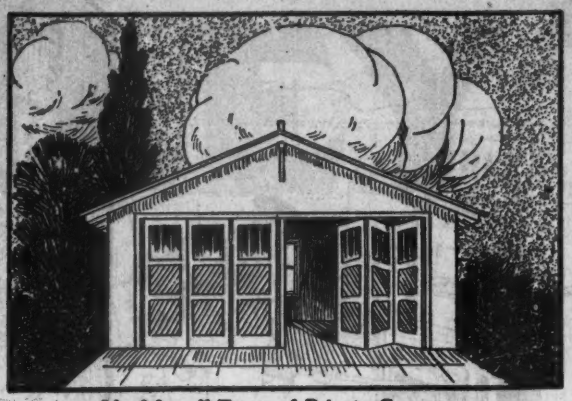
***Contractors and Builders—Send today for illustrated catalog and detailed specifications. Ask about selling rights in your territory.***

## SHARP ROTARY ASH RECEIVER CORPORATION

**601 Bridge Street** **SPRINGFIELD, MASS.**



Well Suited for Public Garages



Ideal for all Types of Private Garages

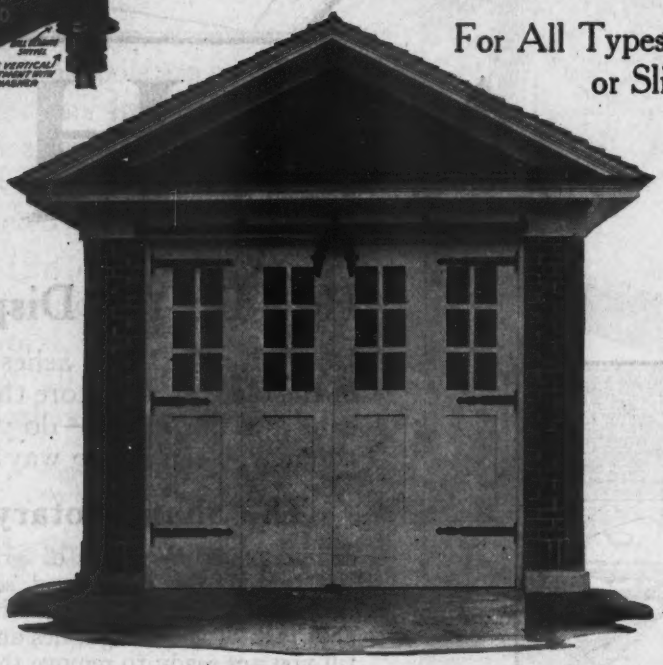
# The Universal Hanger

ROLLER BEARING WHEELS
HANGER ARM SWIVELS
WAGNER MFG. CO
CEDAR FALLS IA
SLOP PERMITS HUB CENTER TO SWINGING TO REVERSE POSITION
SIMPLE VERTICAL ADJUSTMENT WITH LOCK WASHER

# WAGNER Cloztite No. 58

For All Types of Folding or Sliding Doors

**Note Special Features**



***Simple, Strong, Easy to Attach and Operate***

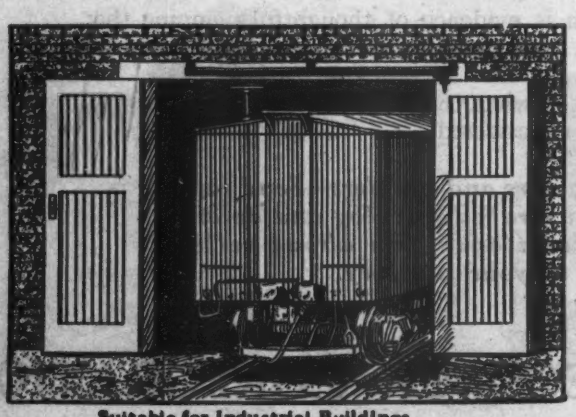
The style of architecture using recessed doors in the illustration shows the adaptability of this hanger to more different arrangements of doors than any other hanger made.

**Prevents Sagging and Makes Doors Weatherproof**

*Ask*

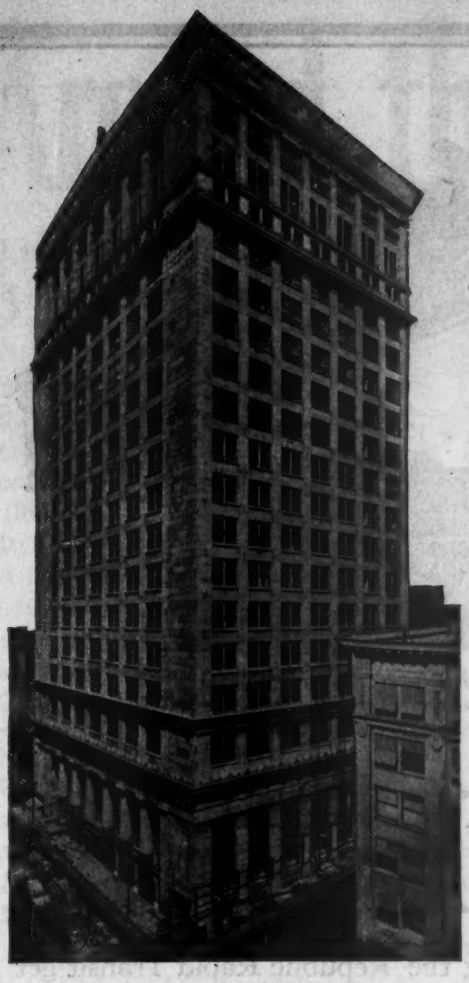
## WAGNER MFG. CO.

**Dept. N** **CEDAR FALLS, IOWA**



Suitable for Industrial Buildings

Equally Adapted to Farm Buildings



The walls of this beautiful Federal Reserve Bank Building at Kansas City, Mo., were built cheaper because they were laid up in Carney.

*Architects:* Graham, Andersen, Probst and White

*Contractors:* George H. Fuller Co.

# *Building the Wall Cheaper*

IF you are not using Carney-made mortar in your walls this advertisement should be worth money to you. If you are, you can appreciate the statement that Carney enables the contractor to build a better wall of brick or tile at a cheaper cost.

In the first place you need not buy lime for Carney. Nature put the right proportion of lime in Carney thousands of years ago. You save the labor and cost of slaking and mixing lime. The simple formula, one part Carney, three parts sand—no lime, means less labor at the mortar box and eliminates mistakes.

Because it sets slower and has such plastic working qualities, more brick can be laid per man, per day and per barrel. This fact has been proven by thousands of contractors.

If your mortar box is half full of Carney mortar when the whistle blows in the evening, there is no waste, for by retempering with water it can be used again in the morning.

These facts have convinced thousands of contractors that they can build their walls cheaper with Carney mortar. If you were to examine a wall laid up in Carney you would find one solid piece of masonry from the foundation to the roof—strong enough to meet the needs of any wall-bearing building.

*Get Complete Details on Building a Cheaper Wall*

Learn the details on building a more economical and better wall with Carney. Write today for the Carney Catalog.

**Carney's Cement Company**

*Cement Makers Since 1883*

**Mankato, Minn.**

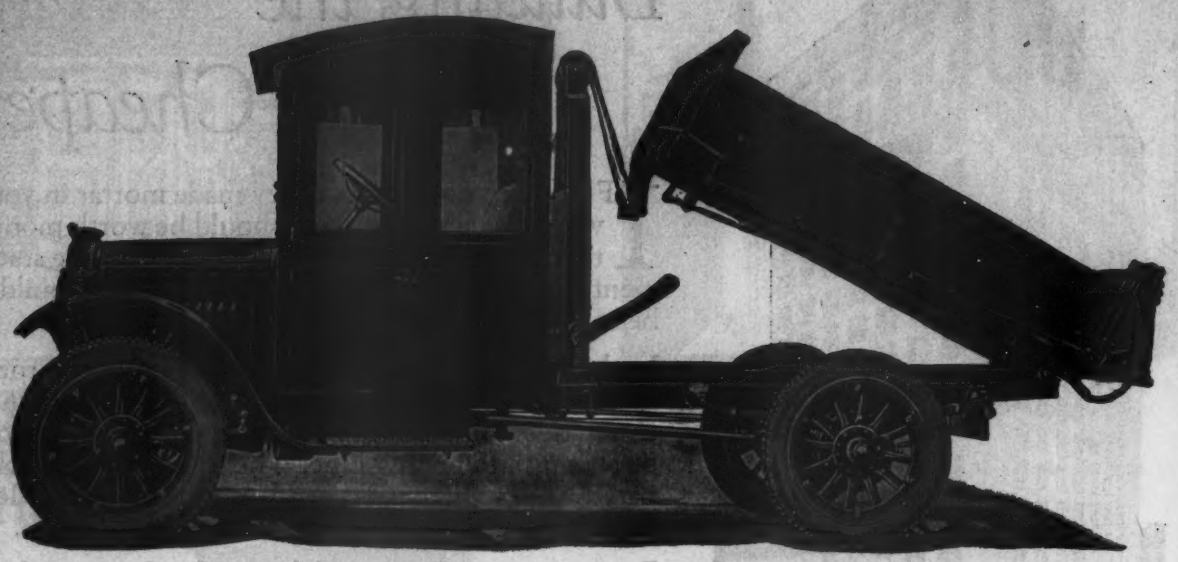
**District Sales Offices:**

Leader-News Bldg., Cleveland; Chamber of Commerce Bldg., Chicago; Omaha National Bank Bldg., Omaha; Syndicate Trust Bldg., St. Louis; Book Bldg., Detroit; Builders' Exchange, Minneapolis

*Specifications:* 1 part Carney, 3 parts sand; no lime

# CARNEY'S CEMENT

## *For Brick and Tile Mortar*



*Republic Rapid Transit with one-yard Dump Body and Closed Cab. Cord Tires, Electric Starter and Lights. Price on Application*

# Make Your Deliveries on Time And at Much Less Cost

REPUBLIC

*Other Body Types Include*

Canopy Top
Stock Rack
Screen Enclosed
Bottlers Body
Open Express
Double Deck
Platform Stake
Tank Body
Police Patrol
Grain Body
Carry-All
Panel Body
Bus Body

Building contractors using the Republic Rapid Transit get materials delivered on time and at a substantial saving in hauling cost.

No idle hands through delay in delivery. It is dependable and keeps to schedule, day in and day out.

Lowest first cost, lowest operation and upkeep cost, plus Republic Unequalled Service have gained for Republic Rapid Transit a reputation as the greatest truck value ever offered the building and contracting industry.

***Write for Vocational Catalog Showing Republic Trucks operating in the Building Industry.***

**The Republic Line: ¾, 1, 1½-2, 2½-3, 3½-4 tons capacity.**

**REPUBLIC TRUCK SALES CORPORATION**
**Alma, Michigan**

# REPUBLIC
## *RAPID TRANSIT*©

**Republic has more trucks in use than any other exclusive truck manufacturer.**

# Around the Family Table

### Lets Hear From You

ONE of our subscribers came into the office the other day looking for information about some building work he was doing. After some talk we found out that he was building four houses out here in a small town in Illinois.

Immediately we suggested that he send us photos of these buildings when they were finished or even while under construction. We told him we wanted to show them to other builders thru our correspondence department.

"That would be a good idea," he said very much pleased, "I did not know that could be done." And he went away with a smile on his face.

Well, if we were **not** interested in what Bill Jones is doing, what Harry Smith has in mind, and what our other 45,000 readers were doing *we should get out of business.* We are here to take care of these readers and one way is to show appreciation for their work and let others know about it. This man is a *real constructive force in his town,* small as it may be, and is entitled to our congratulations. He is building homes.

The country will be better off with more homes and he is doing his bit to bring this about. **More luck to you, Brother!**

✣

### Winter Has No Terrors For Him

LAST month you met Tom Higgins, the busiest man in Griffith, Ind., a glutton for work, and a builder who made money during the winter months.

We don't know just how big Griffith, Ind., is, but we do not believe it is much smaller than Benton Harbor, by this, not throwing any slurs at Benton Harbor, for despite its size it is very definitely on the map and has a story that will interest every one of our readers.

Tom Higgins *found the magic formula for winter profits in* wallboard.

Over in Benton Harbor there is a building contractor by name S. A. McDearmon who has business philosophy that cannot admit of anything but success—for here is his motto:

**"No job too large—none too small."**

There is something comprehensive, something striking, about this slogan. It reveals an unlimited ambition and determination that is not marked off by any definite boundaries.

When we saw his slogan we stopped—it made us stop.

Here was a Tom Higgins No. 2.

There is much for the contractor to do during the summer rush. Summer homes, bungalows, etc., must be built. But winter time is different. That is why we were in for a surprise when we read a letter from Brother McDearmon, contractor, carpenter and builder, Benton Harbor, Mich., the originator of the very striking slogan.

Mac specializes in bungalows, garages, porches, storm house doors and screens.

He read about Tom Higgins in the January number. Like Tom, he has a message to other builders who are confronted with this annual idleness.

Says Mac:

**The thought came to me while reading "Around the Family Table" that I could help some others to be a Tom Higgins No. 3. The writer claims to be No. 2.**

**Winter work can be obtained thru writing to the different door check manufacturers for repair instructions which are gladly sent, then by making yourself the most expert door check repair man in your town.**

**There are eight school buildings in Benton Harbor with an average of ten checks to the building. The rough handling of doors by the children means some checks are out of order most of the time.**

**Then again most store buildings have checks and as a result I am kept on the jump most of the time keeping them in repair.**

**Repairing furniture is another big job during the winter season.**

***I am making almost as much during the winter as in the summer and keep two men busy besides.***

McDearmon also enclosed a copy of an advertisement he runs in the daily papers. **We'd say he was progressive, wouldn't you?**

**Don't Be a Bear**

**Bears sleep all winter. Phone 725J and we will call and show U the latest Bungalo-cottage and house plans.**

**The sooner you see these up to the minute homes, the easier it will be to decide and get your new home started.**

**Don't wait until the spring rush is on.**

**Do it today.**

**REMODELING AND JOBBING DONE**

**McDEARMON**

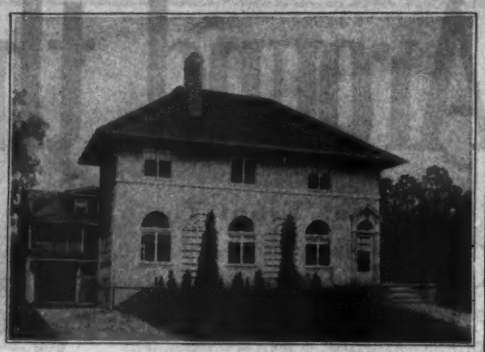
**The Builder, 346 Broadway.**

✣

THE man who becomes discouraged by failure cannot succeed any more than a child can learn to walk without falling. It is by enduring the hard bumps of falling that men ultimately learn to walk Life's Path successfully.

—EDITOR AMERICAN BUILDER.

Residence A. B. Headley, Esq., 1450 East Ave., Rochester, N. Y.
Architects, Foote, Headly & Carpenter, 401-403 Carter Bldg., Rochester, N.Y.
Bishopric used on all exteriors



Residence 1839 Farrington Rd., E. Cleveland, O.
Owners, Architects and Builders—The Joseph Larong Co.
Bishopric used on all interiors and exteriors

# Bishopric Stucco
*over*
# Bishopric Base

## Provides a Unit Wall For All Time and Clime

WITH the tremendous shortage of homes in this country, wise builders, having in mind the economy by reason of the big saving in material and labor in its application, the rapidity with which you can build, the durability and efficiency of Bishopric, can see in the growing demand for stucco homes an opportunity for conservative and profitable investment. Seldom, if ever in fact, have the builders of the country faced such a splendid opportunity for attractive and permanent returns for their outlay.

***A House Built of Bishopric Means:***

(a) Least Cost for Labor.
(b) Least Cost for Material.
(c) Speed of Construction.
(d) Strength-Stability-Endurance.
(e) Living Comfort—Winter and Summer.
(f) Lowest Maintenance Cost.

Write for booklet "For All Time and Clime". Beautifully illustrated—working details—specifications. Let us solve your building problems.

**The Bishopric Manufacturing Co.**
**2 Este Avenue Cincinnati, Ohio**

New York City Office: 2848 Grand Central Terminal
Factories: Cincinnati, Ohio, and Ottawa, Canada

Residence C. F. Sutton
4200 Kingman St., Des Moines, Iowa
Contractor, H. J. Tillis, 215 Flynn Building
Stucco Contractor, Beard & Son
Architect, R. G. McDowell
Bishopric used on all exteriors

Residence Rev. E. O. Tree, Freeport, L. I., N. Y.
Bishopric used on all exteriors

Residence S. H. Morgan, Detroit, Mich.
Architect, Wm. C. Palmer; Contractor, R. M. Rutherford
Bishopric used on all exteriors